PART B

DISPOSAL SITE INFORMATION

SECTION B.1

FACILITY OVERVIEW

B.1 FACILITY OVERVIEW

B.1.1 INTRODUCTION

The proposed GCLF will operate as a Class III waste disposal site in accordance with applicable local, State, and federal regulations. This section presents information regarding the ancillary facilities, environmental monitoring procedures/programs, and waste handling and disposal operations for the proposed facility. The information presented in this part satisfies the regulatory requirements under 27 CCR, Sections 21600 and 21760 with the exception of information related to the disposal site design and site characteristics (e.g., geologic, hydrogeologic conditions), which are presented in Parts C and D of this JTD, respectively.

Gregory Canyon Landfill is owned and operated by Gregory Canyon Limited. Gregory Canyon Limited will also be shown as the operator of record on all permits and approvals, including the SWFP and WDRs. Actual day-to-day operations at the site will be conducted by a contract operator.

Tables 1 (SWRCB JTD Index) and 2 (JTD Index - CIWMB Requirements) included in Part A provides cross-reference information to find the appropriate sections in Part B which best correspond to the specific regulatory requirements for this permitting document under 27 CCR and 40 CFR. In addition, the Subtitle D Checklist is included in Appendix A to assess compliance with 40 CFR, Part 258.

B.1.2 WASTE MANAGEMENT UNIT CLASSIFICATION AND SITING

B.1.2.1 SITE CHARACTERISTICS

In accordance with 27 CCR, Section 20260, Class III landfills shall be located where site characteristics provide adequate separation between wastes and waters of the state. The following classification criteria must be considered for landfills:

- Geologic Setting
- Flooding
- Ground Rupture
- Rapid Geologic Change

These factors were all considered in the design of the GCLF. Based on consideration of the geologic and hydrogeologic setting, a containment system, as presented in Part C, will be utilized at the GCLF. Part D presents additional information on the above listed classification criteria relative to the GCLF design and operation.

B.1.2.2 AIRPORT SAFETY

In accordance with Subtitle D, Subpart B, Airport Safety of 40 CFR, Part 258.10 and 27 CCR, Section 20270, owners/operators of landfills, existing and proposed, are required to demonstrate that a landfill's design and operations will not pose a bird threat to any airport. The GCLF is not located within a five-mile radius of an airport that is used by turbojet aircraft or by piston-type aircraft.

B.1.2.3 FACILITY BOUNDARIES

Figure 2 also shows the property boundary (SWFP boundary), disposal area footprint, approximate acreage of the disposal areas, and the buffer zones (those areas between the property boundary and the disposal area footprint).

B.1.2.4 SURROUNDING LAND USE

Adjacent land uses and zoning designations adjacent to the boundaries of the GCLF are shown on Figures 3 and 4. As shown, land use in the vicinity of the proposed project site is primarily rural, including agricultural, large lot residences, scattered small communities, and occasional large-scale commercial/industrial uses (primarily mining). The GCLF is bounded on the east by the Pala Indian Reservation (including a portion of Gregory Mountain). To the immediate south is Couser Canyon, which hosts agricultural estate-density residential developments, with avocado and citrus estates typically on lots varying from two to eight acres. Between Couser Canyon Road and the southern project site boundary (i.e., within one half mile of the proposed landfill footprint), there are approximately 20 residences, with four structures located within 500 feet of the project boundary. Pala Rey Ranch, a community of agricultural estate-density residences, is located west of the site, with the two closest homes located within 1,000 feet of the GCLF boundary. A sand and gravel extraction operation is located south of SR76 approximately 3,000 feet north of the proposed landfill footprint. Lower Rice Canyon is located northwest of the site. The San Luis Rey River and SR76 run east-

west through the project site with the majority of the project site lying south of SR76. The entire landfill footprint is located south of the river above the 100-year flood plain. A casino was constructed on the Pala Indian Reservation. Figure 5 shows existing structures on adjacent properties within 1,000 feet of the site's property boundary.

The GCLF site is designated as Public/Semi-Public Lands with a Solid Waste Facilities (SWF) designator, as mandated by Proposition C. Although this designation represents lands owned by public agencies, it can also be used to identify privately owned land for appropriate uses. The SWF designator is intended to protect proposed and existing waste facility sites from encroachment by development of incompatible uses.

B.1.3 SITE LOCATION AND ACCESS

The proposed GCLF is located in northern San Diego County approximately three miles east of Interstate 15 (I-15) and two miles southwest of the community of Pala (Figure 6). The site is adjacent to SR 76, the San Luis Rey River and lies along the western slope of Gregory Mountain. The GCLF is located on SR 76, approximately 1300 feet east of the intersection of Couser Canyon Road and SR 76 in Pala, California 92059. The street address is 9708 Pala Road, Pala, California 92059. The GCLF property occupies portions of Sections 4 and 5 of Township 10 South and Sections 32 and 33 of Township 9 South, Range 2 West of USGS 7.5' Pala Quadrangle.

B.1.4 SITE DESCRIPTION

The GCLF is situated on approximately 1,770 acres of which 308 acres will be used for landfill related activities including a 183-acre refuse disposal area footprint. The 308 acres also includes 13 acres for power pole pads and 87 acres designated for soil stockpile and borrow areas. The remaining 25 acres will be utilized for the main access roads and bridge, desilting basins, stockpile/borrow area, haul road and the ancillary facilities discussed in Section B.3. Figure 2 presents the landfill footprints for the proposed project area.

The 1,770-acre site consists of 38 parcels (see property description documentation in Appendix B-3). Two additional parcels, totaling 13 acres, are within the overall project boundary but are owned and maintained by San Diego Gas and Electric (SDG&E).

The landfill owner is in the process of acquiring these parcels. Figure 6A shows the parcels which make-up the site. With the exception of the two SDG&E parcels, all parcels are owned by Gregory Canyon Limited. Gregory Canyon Limited has two short-term lease agreements. For further information, refer to letter from Gregory Canyon Limited in Section A.5.

SR-76, a two-lane highway, is located in an easement through the site and occupies approximately 16.5 acres. In addition to the SR-76 easement, there are two other major easements which cross the site. The San Diego Pipelines Nos. 1 and 2 (First San Diego Aqueduct) are in an easement with an average width of 150 feet that crosses in a north-south direction through the middle of the site (Figure 7). The Aqueduct easement, which consists of two 48-inch pipelines placed approximately 10 to 15 feet below ground surface, is located west of the proposed GCLF footprint.

The Escondido and Talega electrical transmission network (Tie Line 23030), which contains a 230 kilovolt (kV) and the Pala-Lilac 69 kV electrical transmission lines, are located on common structures within a 300-foot wide easement, which traverses the site in a north-south direction along the lower slopes of Gregory Mountain (see Figure 7). The transmission lines are owned and maintained by SDG&E and access to the transmission lines is maintained by SDG&E along unimproved dirt roads primarily within the easement. The GCLF project also includes the relocation of a portion of the existing SDG&E transmission lines and easement because two towers are located within the proposed landfill footprint. Therefore, this easement will be realigned as the landfill is developed to the east of their existing location as shown on Figure 2. The preferred easement realignment and the engineering plans presented in this JTD reflect this configuration. A 300-foot easement for the existing and future SDG&E lines will be maintained. The project applicant is coordinating the proposed relocation of the towers and easement with SDG&E. The towers and transmission lines will be relocated as filling operations move up canyon. If the preferred easement configuration is not obtained, prior to any easement configuration change other than the preferred, the JTD will be amended and submitted to the LEA for approval.

B.1.5 WASTE SOURCE, TYPE, AND VOLUME

B.1.5.1 SERVICE AREA

Though the service area has not been determined, it is anticipated that the GCLF will serve the North County area of San Diego County. Waste flow agreements with surrounding communities will ultimately define the service area.

B.1.5.2 WASTE TYPES

B.1.5.2.1 GENERAL

The wastes received at the GCLF will consist of non-hazardous solid wastes and inert wastes classified in accordance with 27 CCR, Sections 20220(a) and 20230 (Class III wastes). The definition of non-hazardous solid waste as included in27 CCR includes all putrescible and non- putrescible solid and semi-solid wastes such as household refuse, paper, rubbish, ashes, commercial wastes, industrial wastes, construction and demolition wastes, abandoned vehicles, tires, vehicle parts, discarded home and industrial appliances, manure, animal solids, dewatered sewage sludge, and other solid or semi-solid waste, provided that such wastes do not contain wastes that must be managed as hazardous wastes, or wastes that contain soluble pollutants in concentrations which may exceed applicable water quality objectives or could cause degradation of the waters of the State.

Dewatered sludge will be accepted at the GCLF in accordance with 27 CCR, Section 20220(c). Dewatered sewage or water treatment sludge will be accepted under the following conditions, unless the California Department of Toxic Substances Control (DTSC) determines that the waste must be managed as hazardous waste:

- the landfill is equipped with a LCRS (see Sections B.5.1.1.2 and C.2.5 for details regarding the GCLF LCRS);
- the sludge contains at least 20 percent solids (by weight) if primary sludge, or at least 15 percent solids if secondary sludge, mixtures of primary and secondary sludges, or water treatment sludge; and
- a minimum solids to liquid ratio of 5:1 by weight shall be maintained to ensure that the co-disposal will not exceed the initial moisture holding capacity of the non-hazardous solid waste. The actual ratio required by the RWQCB shall be based on site-specific conditions.

In addition, inert waste, such as asphalt and concrete, that does not contain hazardous waste or soluble pollutants at concentrations in excess of applicable water quality objectives will be accepted at the GCLF. This waste material may be utilized for the construction of a winter deck area and for maintenance of the internal roads and drainage control facilities on the landfill. In addition, green and

wood wastes will be accepted and disposed of at the working face, but not processed (i.e., shredded or mulched) on the site.

No salvaging operations other than the public drop-off area are planned at this time. The public drop-off area is further discussed in Sections B.3.1.9, B.4.5.1 and B.4.5.2 of this document.

Designated wastes will not be accepted at the GCLF. Class I and Class II wastes will not be accepted at this site. Wastes that will not be accepted at the GCLF are referenced in Section B.1.5.2.2.

B.1.5.2.2 HAZARDOUS WASTES

The disposal of hazardous wastes, pesticides or any other toxic wastes at the GCLF will be prohibited. Non-hazardous asbestos will not be accepted at the landfill. Hazardous waste exclusion policies will be enforced at the GCLF (see Section B.4.4.2.1).

B.1.5.2.3 OTHER WASTES REQUIRING SPECIAL HANDLING

Wastes which require special handling to be accepted at the GCLF will include tires and bulky wastes. Tires accepted at the site will be stored in a designated, secured area within the landfill footprint. The storage location will move, as needed, depending on the operational phase of the landfill.

The tire storage area will:

- Not exceed 5,000 square feet of contiguous area;
- Not exceed 50,000 cubic feet in volume;
- Be less than 10 feet in height;
- Be more than 20 feet from any property line or perimeter fencing; and
- Separated from vegetation and other potential flammable materials by no less than 40 feet.

Tires will be stored on site in accordance with San Diego County's 1994 Uniform Fire Code, Section 1103.3.6 - Outside Storage of Tires and 14 CCR, Section 17354. Tires will be stored for a maximum of six months to avoid the collection of standing water, rodents and snakes, and to minimize fire hazards. A portable tire shredder will be brought on site when the allowed volumes of

storage are met or at a minimum of once every six months to shred the collected tires. The shredded tires will be landfilled.

Large bulky wastes may include concrete, demolition debris, tree trunks or large branches, which may be used on-site for winter deck construction. Bulky wastes may include tires, furniture and appliances.

B.1.5.3 WASTE DECOMPOSITION PROCESSES/PRODUCTS

B.1.5.3.1 GENERAL WASTE DECOMPOSITION PROCESS

Solid waste in landfills undergoes natural, chemical and biological decomposition following disposal. The waste decomposition process works in the following manner: organic waste products undergo aerobic decomposition during storage and transport, after placement in the landfill and until aerobic processes deplete the available oxygen. As oxygen becomes depleted, anaerobic decomposition becomes dominant. The duration of the waste decomposition can vary from a few years to over 100 years, depending on the presence and amount of oxygen, moisture content, pH, and temperature within the refuse prism.

The products of biological decomposition of organic wastes are solids, liquids, and gases. Typical primary products of municipal refuse aerobic decomposition are carbon dioxide, water, and nitrates. Typical primary products of anaerobic decomposition are methane, carbon dioxide, water, organic acids, nitrogen, ammonia, iron sulfides, manganese, and hydrogen. Degradation of inorganic waste products occur primarily through chemical oxidation.

B.1.5.3.2 FINAL PRODUCTS

Leachate

Leachate is formed by the infiltration of surface water by the migration of water generated by the decomposition of waste and any free liquids introduced into the waste that migrate through the refuse prism to the bottom of the landfill. The GCLF has been designed and will be operated to minimize leachate formation by reducing potential surface water contact with refuse. The quantity of leachate expected to be generated at the site has been estimated by

modeling the water balance in the landfill and the results of this modeling were utilized in the design of the various leachate systems described in this JTD. As with any mathematical modeling, the results of these calculations should be viewed as an approximation of the actual situation. Typical constituents inherent in leachate are shown on Table 3A below.

TABLE 3A
GREGORY CANYON LANDFILL
TYPICAL LEACHATE COMPOSITION

	Value, mg/L		
	New Landfill (<2 years)		Mature Landfill
Constituent	Range[c]	Typical	(>10 years
BOD_5 (5-day biochemical oxygen demand)	2K-30K	10K	100-200
TOC (total organic carbon)	1.5K-20K	6K	80-160
COD (chemical oxygen demand)	3K-60K	18K	100-500
Total suspended solids	200-2K	500	100-400
Organic nitrogen	10-800	200	80-120
Ammonia nitrogen	10-800	200	20-40
Nitrate	5-40	25	5-10
Total Phosphorus	5-100	30	5-10
Ortho phosphorus	4-80	20	4-8
Alkalinity as $CaCO_3$	1K-10K	3K	200-1K
pH	4.5-7.5	6	6.6-7.5
Total hardness as $CaCO_3$	300-10K	3.5K	200-500
Calcium	200-3K	1K	100-400
Magnesium	50-1.5K	250	50-200
Potassium	200-1K	300	0-400
Sodium	200-2.5K	500	100-200
Chloride	200-3K	500	100-400
Sulfate	50-1K	300	20-50
Total Iron	50-1.2K	60	20-200

Source: 1993, Tchobanoglous, Theisen and Vigil, Integrated Solid Waste Management Engineering Principles and Management Issues, McGraw-Hill, Inc.

In addition to inorganic compounds, typically landfill-generated leachate and the condensate produced by landfill gas contains numerous chlorinated aliphatic and aromatic organic compounds. The most commonly detected of these include tetrachloroethene (PCE), trichloroethene (TCE), isomers of dichloroethene (DCE) and dichloroethane (DCA), vinyl chloride, and aromatic compounds such as benzene, toluene, ethylbenzene, and xylenes (collectively, BTEX compounds). The total concentration of VOCs measured in typical landfill leachate samples rarely exceeds 1 milligram per liter (1 mg/L). At these concentrations, the VOCs exist in a dissolved phase within the leachate, and do not form immiscible layers that can be identified within an aquifer and removed.

Engineering and chemical properties of the "other layers " such as daily and intermediate cover materials are discussed in Section D.4.3, Engineering and Chemical Properties of Geologic Materials. Other materials utilized in the construction of the groundwater protection system or liner are considered industry standard material and have been manufactured specifically to remain inert when exposed to typical landfill constituents. A discussion of landfill gas generation and associated mitigation measures for landfill gas are included in the JTD in Sections B.5.1.5.2 and B.5.1.6.2, respectively.

Landfill Gas

Gas composition in a landfill varies, depending on the types of wastes and environmental conditions that develop during decomposition. The typical gas composition for a municipal solid waste landfill is as follows:

TABLE 3B
GREGORY CANYON LANDFILL
ANTICIPATED LANDFILL GAS COMPOSITION

Landfill Gas Components	Percentage of Gas
Methane	40 - 50
Carbon Dioxide	30 - 45
Nitrogen	10 - 25
Oxygen	0 - 5
Hydrogen	0 - 1
Heavier Hydrocarbons	1,000 - 1,500 parts per million (ppm)
Miscellaneous	200 - 3,000 ppm

The projected landfill gas generation estimates will be utilized in the design of the landfill gas collection and control systems for the GCLF. The gas control and monitoring system proposed for the GCLF is discussed in Section C.2.7.

B.1.5.4 WASTE INFLOW RATES

The anticipated initial inflow rate to the GCLF will be approximately 1,950 tpd, which corresponds to an initial annual inflow rate of approximately 600,000 tons. The average inflow rate over the life of the project is estimated to be about 3,200 tpd and the peak daily loading will be 5,000 tpd.

The anticipated physical composition of individual waste types as a percentage of the initial waste stream for the GCLF was based on information from several landfills within the State of California. The actual percentages of waste types received at the GCLF may vary depending on the make-up of the eventual service area. The estimated waste types are shown on Table 4, which also includes the estimated daily and annual waste volumes for the waste types discussed in Section B.1.5.2.

TABLE 4
GREGORY CANYON LANDFILL
ANTICIPATED LANDFILL WASTE TYPES AND QUANTITIES

Major Waste Categories	Waste Sub-Types		Approximate Tonnage by Type (tons)		Typical Percentage of Total Tonnage
	Putrescible	Putrescible	Annually (6 days/wk)	Daily	
Residential	Household refuse, food, tree and lawn clippings, leaves, brush, scrap lumber, newspaper, paper	Household refuse, small metal containers, patio furniture, furniture, plastic containers, glass	390,000	1,270	65%
Commercial/ Industrial	institutional and process food waste, paper, corrugated cardboard	plastic, rubber, glass, mixtures of concrete, asphalt, steel, brick, block	210,000	680	35%
TOTALS			**600,000**	**1,950**	**100%**

Note: Construction/demolition and/or inert wastes are included under the "Commercial/Industrial" waste type category percentage.

Table 4A shows the average five-year tonnage projections for the site based on the starting daily inflow rate (approximately 1,950 tpd) for the first year of operation and the average daily inflow rate over the life of the project (about 3,200 tpd) for the second through fifth years of operation. Based on information provided in Table 4A, the average five-year projected waste flow estimate is approximately 906,000 tons per year.

TABLE 4A
GREGORY CANYON LANDFILL
FIVE-YEAR PROJECTED WASTE FLOW

Year	Daily Projected Waste Inflow (tons)	Annual Projected Waste Inflow (tons)	Cumulative Waste (tons)
1	1,950	598,650	598,650
2	3,200	982,400*	1,581,050
3	3,200	982,400*	2,563,450
4	3,200	982,400*	3,545,850
5	3,200	982,400*	4,528,250

* Annual projected waste inflow calculation based on 307 operating days and daily projected waste inflow of 3,200 tons.

B.1.6 SITE CAPACITY

The total site capacity, also known as gross airspace, is based on the difference between the proposed bottom grades and the proposed final disposal area grading contours. The total estimated gross airspace for the proposed GCLF is 60.0 million cubic yards (mcy). The total estimated net airspace (i.e., net airspace = gross airspace less volume consumed by the containment system and final cover system) is approximately 57.5 mcy. The total estimated refuse volume, based on a refuse to daily and intermediate soil cover volume ratio of 4:1, is approximately 46.0 mcy or 31.1 million tons based on an in-place refuse density of 1,350 lbs/cy.

B.1.6.1 FACTORS AFFECTING SITE CAPACITY

Many factors can affect the ultimate site capacity of a given landfill including variations in the use of alternative daily covers, AB 939 recycling programs and/or the annual tonnage delivered to the landfill. In addition, long-term landfill settlement can also have an impact on site capacity and may average 30 percent of the total refuse thickness. The total effect of settlement will depend on various factors or processes such as the types of refuse placed and their corresponding moisture content, the refuse placement density, consolidation of the refuse under loads imposed by overlying fill, and biological and chemical decomposition. It is estimated that much of this total settlement will occur during the operating life of the landfill and will be accounted for in periodic topographic surveys. A settlement analysis was performed for the GCLF and the results are included in the preliminary closure plan (see Part E and Appendix C).

The operator, as part of maintaining ongoing compliance with applicable State regulations, will prepare a permit review report every five years in accordance with 27 CCR, Sections 21640 and 21675, which will include a review of operations, proposed changes in design and operation as documented by amendments to the JTD and finally, an estimate of the remaining capacity and associated site life.

B.1.7 SITE LIFE

Although factors such as waste diversion/reduction, recycling and salvaging may affect inflow rates, it is expected that overall population growth within the

service area will increase annual disposal rates at the GCLF over the life of the project. In order to calculate the site life for the GCLF, the following criteria was utilized.

- Net Airspace (less liner and final cover) 57.50 mcy
- Refuse to Cover Ratio 4:1
- In-Place Density 1,350 lbs/cy
- Starting Inflow Rate 1,950 tpd

The net airspace was estimated by calculating the difference between the proposed subgrade elevations and the final fill elevations less the liner and final cover quantities. The estimated quantities for the soil components (e.g., clay liner, operations layer and LCRS gravel) of the liner system and final cover are approximately 1.3 mcy and 1.2 mcy, respectively. The daily and intermediate cover quantity for the project is estimated to be approximately 11.5 mcy based on a refuse to cover ratio of 4:1. This daily and intermediate cover ratio may be adjusted over time due to the proposed use of synthetic blanket ADC as allowed under 27 CCR, Section 20690. The inflow rate over the life of the landfill may increase over time until the maximum tpd is achieved. The operator will maintain a constant level thereafter. The site life for the GCLF is calculated to be approximately 30 years.

B.1.8 TYPES AND NUMBERS OF VEHICLES ANTICIPATED TO ENTER THE FACILITY

Several vehicle volumes associated with the proposed project and the proposed peak daily tonnage were addressed in the EIR which was prepared in support of the project. The projected maximum traffic volume, as addressed in the EIR, is estimated to be 675 eight-ton refuse and construction trucks (i.e., trucks necessary to transport crushed rock off-site) or 2,025 passenger car equivalents per day. In addition to refuse and construction trucks, employee, service or visitor vehicles will access the site for an additional 60 trips per day. The general types of refuse and private vehicles utilizing the GCLF may include, but not be limited to, the following:

- 3-axle trucks and vans
- 4-axle refuse collection packer trucks
- 10-wheel dump trucks

- Belly-dump tractor-trailers
- Fuel transportation vehicles
- Personnel transportation vehicles
- Private vehicles - pick-up trucks and automobiles
- Transfer station 18-wheel, tractor-trailer trucks
- Equipment transport service and maintenance vehicles

It should be noted that types of refuse vehicles may vary depending on the source generator such as a transfer station, which may employ the use of 20-ton transfer trailers.

B.1.9 END USE OF SITE

The ultimate post-closure end use for the GCLF will be undeveloped open space. The final cover for the site will be designed to meet regulatory requirements effective at the time of closure. A Final Closure Plan will be prepared and submitted to the appropriate regulatory agencies (e.g., CIWMB, EA and RWQCB) at least two years prior to the landfill's anticipated closure date, for any portion thereof, or the entire landfill. The CIWMB, RWQCB, and EA, in accordance with 27 CCR, Section 21190, must review any future proposed changes to the currently proposed end use that would require construction improvements. Any proposed post-closure land use design change must be in accordance with 27 CCR, Section 21190.

SECTION B.2

REGULATORY REQUIREMENTS

B.2 REGULATORY REQUIREMENTS

B.2.1 INTRODUCTION

The operation of a Class III landfill in the State of California requires the approval of local and state agencies having jurisdiction over the handling and disposal of non-hazardous solid waste. The following sections list the responsible agencies that have jurisdiction over the GCLF and the permits that will need to be acquired for the landfill.

B.2.2 PERMITS AND APPROVALS

B.2.2.1 CALIFORNIA INTEGRATED WASTE MANAGEMENT BOARD

All Class III solid waste facilities are required to have a SWFP issued by the EA and concurred on by the CIWMB. The SWFP conditions the operation and closure of the project, including monitoring requirements.

The main supporting document to obtain the SWFP is the JTD. This JTD contains all of the technical information on the GCLF's operation, engineering design, site and surrounding area characteristics, closure and post-closure maintenance, and end use. This JTD was prepared in accordance with the content requirements mandated in 27 CCR, Sections 21585, 21590 and 21600. This JTD was submitted along with an application package, to meet requirements of 27 CCR, Section 21570, in support of obtaining a SWFP for the GCLF.

In addition, as allowed under 27 CCR, Section 21570(f)(6), a PCPCMP has been included as Parts E and F of this document. These sections provide the information to be used as the basis to prepare the closure and post-closure maintenance cost estimate. This estimate will in turn be used to annually fund the closure account to provide for an environmentally sound closure and 30 years of post-closure maintenance. A financial mechanism, in accordance with 27 CCR, Chapter 6 and 40CFR Subpart G, has been established for the GCLF closure and post-closure maintenance and is an element of the SWFP application package.

A certificate of insurance to demonstrate financial responsibility for operating liability claims (environmental impairment liability) has been acquired and will be updated annually pursuant to 27 CCR, Section 22215. Verification of insurance for operating liability is included in the SWFP application package.

B.2.2.2 CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

The State Water Resources Control Board (SWRCB) requires Class III solid waste disposal facilities to obtain WDRs. The San Diego RWQCB is the local agency, under the SWRCB, having jurisdiction and authority to issue site-specific WDRs for the GCLF. This JTD was prepared in support of obtaining a new WDR for the GCLF and includes all of the technical information on the GCLF's operation, water protection design, site and surrounding area characteristics, closure and post-closure maintenance, and end use.

The RWQCB is responsible for the issuance of a Section 401 Waiver, which addresses water quality impacts on waterways. The RWQCB also regulates municipal and industrial stormwater discharge requirements under the National Pollutant Discharge Elimination System (NPDES) program. To obtain authorization for industrial stormwater discharge, the landfill must comply with a General Permit to Discharge Stormwater Associated with Industrial and Construction Activities. The operator has submitted a Notice of Intent (NOI) to comply with the NPDES Construction Activities General Permit and will submit a NOI for Industrial Activities prior to implementation of disposal operations. A Stormwater Pollution Prevention Plan (SWPPP) and a Monitoring Program and Reporting Requirements (MPRR) have been prepared for the proposed GCLF, in accordance with NPDES General Permit requirements (see Appendix D). At the time of closure construction, the landfill cap will be covered by the Construction Activities General Permit. The closed landfill and post-closure maintenance would be covered by the Industrial Activities General Permit. A financial mechanism in accordance with 27 CCR will be established for the reasonably foreseeable release prior to implementation of disposal operations.

The SWPPP and MPRR will be amended, as necessary, when there is a change in construction, operation, or maintenance procedures which may cause the discharge of significant quantities of pollutants to surface water, groundwater, or local agency's storm drain system.

To permit discharge of extracted groundwater to a waterway, the RWQCB also regulates the General NPDES Permit Authorization for Discharges of Groundwater to Surface Waters. Although no groundwater is anticipated to accumulate in the subdrain system, a permit would be required to discharge any groundwater collected by the subdrain system beneath the landfill to the San Luis Rey River (if it is not used by on site operations). This type of discharge is currently regulated under RWQCB Order No. 96-41 for groundwater extraction and similar waste discharges to surface waters within the San Diego Region, except for San Diego Bay. In the unlikely event that there is a measurable accumulation of groundwater in the subdrain system collection tank, and this water cannot be utilized for operational uses, a permit application package will be submitted to the RWQCB for subdrain water discharges.

B.2.2.3 COUNTY OF SAN DIEGO

Department of Environmental Health Services

The County of San Diego, Department of Environmental Health Services is the EA having jurisdiction over the GCLF. The EA issues and enforces the terms and conditions of the SWFP and conducts monthly inspections of the landfill. The SWFP lists the conditions of operation and closure which the facility is subject to comply.

San Diego Air Pollution Control District (APCD)

The proposed project falls under the jurisdiction of the San Diego APCD for the monitoring and control of dust and gas emissions outlined in Rule 59 (d) (ii) A (Landfill Emissions Control Systems). The operator will apply for a permit to operate for construction activities and the control of resultant dust. It may also be required for groundwater treatment technologies.

Facilities to collect and destroy landfill gas emitted from the landfill are planned for installation at a future date dependent on waste placement operations. At that time, the necessary permits will be acquired to operate landfill gas collection and destruction facilities, which may be planned for future operations.

Department of Planning and Land Use (DPLU)

Typically, the local land use authority will require the project proponent to obtain a land use entitlement. In the case of the GCLF, the approval would normally be obtained from the San Diego County DPLU. However, in 1994, Proposition C was written to provide for the siting of a new Class III landfill to allow the residents and businesses of northern San Diego County a place to dispose of their solid waste. Proposition C amended the County's General Plan, Zoning Ordinance and other ordinances and policies to allow the construction and operation of a Class III landfill. The Zoning Ordinance was amended to create a new zoning classification designator (Solid Waste Facility) applied only to the Gregory Canyon site. The approval of Proposition C by the voters in November 1994 allowed the project to go forward without the need for any permits from the County of San Diego except for the Habitat Loss Permit (Rule 4d), Approval of Reclamation Plan and Financial Assurances, Water Course Alternation Permit, Bridge Permit, Grading Permit and Building Permit. A copy of Proposition C is included in Appendix B.

Countywide Integrated Waste Management Plan (CIWMP)

The California Integrated Waste Management Act of 1989 (Public Resources Code Section 40000, seq.) requires cities and counties to prepare a plan for their solid waste system known as a CIWMP. The County of San Diego completed their CIWMP in 1996 and received approval from the CIWMB in June 1997. The GCLF expansion project was included in the Siting Element within the CIWMP (see Appendix B).

B.2.2.4 OTHER PERMITS

In addition to the above reviews, approvals and permits, a list of the permits and approvals for the construction and operation of the GCLF are presented in Table 5 and Appendix D-1.

In addition to permits listed in Table 5, the applicant (Gregory Canyon Limited) may be required to obtain the following permits from San Diego County:

- Groundwater Well Permit
- Landfill Gas Migration Probes Permit
- Well Destruction Permits

B.2.2.5 CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA) DOCUMENTATION

A Notice of Preparation (NOP) for the GCLF was prepared in May, 1995 and sent to all responsible agencies and interested parties. The NOP provided notification that an EIR would be prepared for the proposed project. Thereafter, in accordance with CEQA (Public Resources Code, Section 21,000 et seq.) and the State Guidelines for Implementation of CEQA, a Draft EIR and Revised Draft EIR (RDEIR) were prepared in 1999 to document existing environmental conditions and evaluate the potentially significant environmental effects that could result from the implementation of the proposed GCLF project. Portions of the EIR were recirculated for public review as a Revised Partial Draft EIR (RPDEIR) in May 2000. Since then, all public comments received during the comment periods for the RDEIR and the RPDEIR have been incorporated into the Final EIR, which was resubmitted to the EA in December 2002. The Final EIR was certified by the Director of the Solid Waste EA on February 6, 2003. In conjunction with the preparation of the Final EIR, a Mitigation Monitoring and Reporting Program (MMRP) was also prepared in compliance with CEQA Guidelines. The CEQA MMRP schedule from the certified FEIR is presented in Appendix D-2 in accordance with 21570(f)(4).

TABLE 5
GREGORY CANYON LANDFILL
SUMMARY OF PERMITS

PERMIT NAME	ISSUING AGENCY	PURPOSE OF PERMIT
Solid Waste Facilities Permit (SWFP)	San Diego County Department of Environmental Health (concurrence by California Integrated Waste Management Board)	Defines operating conditions
Waste Discharge Requirements (WDRs)	Regional Water Quality Control Board	Defines operating conditions and groundwater and surface water protection and monitoring procedures
Variance for Engineered Alternative[a]	Regional Water Quality Control Board	Allow engineered alternative design for bottom design.
National Pollution Discharge Elimination System Permit (NPDES)[b]	State Water Resources Control Board	Establishes requirements for discharges to storm drains and allows discharge of groundwater to surface water.
Section 401 Water Quality Certification	Regional Water Quality Control Board	Addresses water quality impacts on waterways
Permit to Construct/Operate (Air Quality)	San Diego Air Pollution Control District (APCD)	Specifies equipment and standards for collection, processing, and combustion of landfill gas
Section 404 Permit	U.S. Army Corps of Engineers	Addresses disturbances to "waters of the U.S."
Section 7 Consultation[c]	U.S. Fish and Wildlife Service	Addresses Endangered Species Act
Streambed Alteration (Section 1603) Agreement	California Department of Fish and Game	Addresses disturbances to natural streambeds and mitigation measures
Water Appropriation Permit	State Water Resources Board	Addresses water appropriation.
Section 106[e]	State Historic Preservation Office	Consultation regarding cultural resources
Encroachment Permit	California Department of Transportation	Defines modifications to SR 76
Bridge Permit	San Diego County Public Works Department	Addresses crossing of waterways
Water Course Alteration Permit	San Diego County Public Works Department	Addresses alteration to waterways
Habitat Loss Permit (Rule 4d)[c]	San Diego County Department of Planning and Land Use	Addresses loss of habitat
Blasting Permit	San Diego County Sheriff's Department	Defines standards for blasting
Grading Permit	San Diego County Department of Planning and Land Use-Building Div.	Defines standards for grading
Relocation Approval	Public Utilities Commission	Relocation of the easement and towers
Approval of Reclamation Plan and Financial Assurances[d]	San Diego County Department of Planning and Land Use	Reclamation of stockpiles, processing areas, and road (as required by State Surface Mining and Reclamation Act)
Building Permit	San Diego County Department of Planning and Land Use-Building Div.	Defines standards for construction of structures
Major Use Permit[f]	San Diego County Department of Planning and Land Use	Exportation or sale of aggregate material

[a] Alternatives that do not require a variance have been included in Chapter 6 of the FEIR.

[b] For the landfill and ancillary facilities, including the RO system

[c] Either a Section 7 or Habitat Loss Permit may be obtained to authorize an incidental take.

[d] A reclamation plan may not be required because the State Surface Mining and Reclamation Act does not apply to certain activities as provided in Public Resources Code Section 2714(b).

[e] Section 106 consultation under the National Historic Preservation Act (NHPA), if and to the extent required, if applicable.

[f] The San Diego County Ordinance, under the definition of borrow pit, allows for nine exceptions to the requirement for a MUP for the exportation and sale of aggregate material. Some of the exceptions include site preparation that is completed within a one-year timeframe. Therefore, the initial construction phase may be exempt from the requirement for a MUP. However, the project has been designed to accommodate the storage of all excavated material on-site. If the exportation or sale of aggregate material were to occur, the applicant would obtain the MUP, if necessary, prior to the exportation or sale of material.

Source: Proposition C; David Evans and Associates, Inc.; San Diego County Department of Planning and Land Use, PCR Services Corporation 2002

Source: Final Environmental Impact Report, November 2000.

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B.2.3 DESIGN REQUIREMENTS

Those design conditions, criteria and requirements applicable to the GCLF and established by the various regulatory agencies having jurisdiction over the landfill are included in the permits described in Section B.2.2.

B.2.4 OPERATIONAL REQUIREMENTS

Those operational restrictions and requirements applicable to the GCLF and established by the various regulatory agencies having jurisdiction over the landfill are included in the permits and documents described in Section B.2.2.

SECTION B.3

DISPOSAL SITE IMPROVEMENTS

B.3 DISPOSAL SITE IMPROVEMENTS

B.3.1 SITE FACILITIES

The proposed GCLF will have the following facilities to support its daily operations: main access road and bridge, internal haul roads, entrance facilities, utilities, on-site water storage tanks, operations support facilities, hazardous waste storage area, recyclable drop-off area, a reverse osmosis system, and landfill gas flare station. The following sections describe GCLF facilities and their locations. A Site Facilities Plan showing the locations of these facilities is presented on Figure 8.

Environmental control/protection facilities such as the gas and groundwater monitoring systems and surface water drainage control systems are described in Section B.5 and Part C. It should be noted that some of the site facilities will be installed after disposal operations commence. Once the main access road and bridge have been installed, temporary scales, fee booths, administration and maintenance facilities will be utilized until permanent facilities are constructed. The permanent site facilities and/or improvements, as discussed in this section, will be constructed in stages as the landfill is developed and operational activities ramp up to accommodate increased inflow rates over time. The temporary facilities, such as scales and structures, will be replaced with permanent facilities within three years of the initial receipt of waste.

B.3.1.1 MAIN ACCESS ROAD AND BRIDGE

The GCLF project includes some modifications to SR-76 (Pala Road) at the start of the main access road to improve sight distance and to facilitate truck movements. The improvements, which are approximately 1,700 linear feet, will realign SR 76 to the south of the existing alignment. In addition, the improvements will widen the roadway from 52 to 64 feet to provide for an eastbound deceleration lane and a westbound turn lane into the GCLF.

The proposed access road from SR 76 will be two to three lanes, approximately 32-36 feet wide and will include a bridge over the San Luis Rey River. The road will extend through the abandoned Lucio dairy to the ancillary facilities area. The access road from SR 76 to the bridge will be about 910 linear feet and will

be 32 feet wide, with two 12-foot travel lanes and a four-foot shoulder on each side. The access road from the bridge into the ancillary facilities will be about 985 linear feet and will be 36 feet wide, with three lanes (two travel lanes and a center lane) with a four-foot shoulder on each side. The access road will be paved with asphalt curbs.

As the access road enters the ancillary facilities area, the road will cross over the existing First San Diego Aqueduct. Two reinforced concrete slabs will be placed at grade, one centered over each pipeline. Each two-foot thick slab will be 26 feet wide and 64 feet in length placed on top of a layer of polystyrene. The three to four foot deep soldier beams at each end of the slab will absorb the weight of the vehicles crossing over the aqueduct.

A bridge, approximately 681 feet in length, supported by five large diameter piers, which will form the base of the structure, will be constructed across the San Luis Rey River. The 35.5-foot wide bridge will have two travel lanes. Reflective strips will be used on the inside structure of the bridge to guide vehicles safely across during early morning and early evening hours. No overhead lighting will be installed on the bridge.

The length of the bridge was increased to 681 feet from the initial design completed in 1999. The increased span reduces the impacts to the San Luis Rey River compared with the original design (640 feet in length). The primary abutments on either end of the span are located completely outside of the river channel, and there is no longer any approach fill on the north and south river channel banks. This reduces both permanent and temporary impacts to the channel banks. In addition, with this redesign, the amount of grading and channelization in the river channel and adjacent floodplain required to accommodate 100-year flows can be reduced from 9 acres to 1.6 acres. The reduction in grading and channelization increases the amount of acreage within the river channel and floodplain that will be restored using native vegetation, further enhancing habitat for endangered or threatened species.

Customers will be processed through the entrance facilities (i.e., scales and fee booth) and then directed on a system of internal haul roads to the active unloading area. The internal haul roads leading from the entrance facilities to the

unloading area will be paved and/or compacted dirt roads. Signs will be posted along the internal roads to guide customers to the designated, separate unloading areas for commercial and private vehicles.

B.3.1.2 ENTRANCE FACILITIES

The entrance facilities will consist of two fee booths to handle four scales (three for inbound traffic and one for outbound traffic). Additional lanes will be available for visitors, administration and operations personnel to enter and exit the landfill. As discussed above, the GCLF site facilities and/or improvements will be constructed as needed, therefore, temporary scales and fee booths may be employed during initial operations until permanent structures are completed. Figure 2 shows the layout and traffic flow of the entrance facilities.

B.3.1.3 IDENTIFICATION/ENTRY SIGNS

A facility identification sign will be located at the entrance gate. Signs will provide information on the facility operator, hours of operation, and recognized holidays. Signs will be located on the scalehouse indicating the schedule of charges and the general types of waste materials which will not be accepted at the site. Additionally, posted signs will direct customers to the refuse unloading and recycling collection areas. Other posted signs will display site safety and traffic rules.

B.3.1.4 UTILITIES

The on-site utility sources include electrical power and telephones. A 20,000-gallon water storage tank, located north of paved ancillary facilities area, will provide water for dust control and fire protection purposes. The water tank would be continuously refilled as water is used to maintain 20,000 gallons of stored water. The water tank will be supplied from on-site groundwater wells. Drinking water will be provided to landfill personnel through bottled water. A portable chemical toilet will be located at the northern end of the ancillary facilities area. The operator will contract with a sewage disposal service to remove effluent from the chemical toilets for offsite treatment and disposal.

B.3.1.5 OPERATIONS SUPPORT FACILITIES

The operations support facilities will be located in the same area as the entrance facilities at the north end of the landfill footprint. The operations support facilities will consist of an office building to be used for administrative functions, a maintenance building, an equipment and storage area, a parking area for employees and visitors, a water tank, portable toilets, and a concrete pad used for temporary storage of source separated recyclable goods, which will be transported off-site periodically. In addition, a diesel storage tank within a concrete containment wall, will be located south of the building for refueling of equipment. A portable emergency showerhead will also be provided outside the maintenance building. As previously discussed, the GCLF site facilities and improvements will be constructed as needed; therefore, temporary facilities will be employed during initial operations until permanent structures are completed.

B.3.1.6 HOUSEHOLD HAZARDOUS WASTE STORAGE AREA

Household and other hazardous wastes segregated from incoming wastes through the Load Checking Program or found at the working face that cannot be returned to the transporter will be temporarily stored in a secured hazardous materials storage area located in the southeastern portion of the ancillary facilities area (Figure 8). A full-time spotter will observe unloading activities during all refuse hours of operation. Hazardous wastes generated by on-site equipment maintenance activities (i.e., changing of lubricating oils) will be stored at the maintenance building area until transported off-site for proper disposal.

B.3.1.7 FLARE STATION

A landfill gas flare station for the destruction of landfill gas will be located on-site east of the ancillary facilities and north of the disposal area or at a location approved by the San Diego APCD. The flare station will consist of flares and blowers, piping and other associated equipment. The flare facility will be expanded as the landfill is developed to provide ongoing control within the performance criteria established and mandated by the San Diego APCD and State and federal regulations.

B.3.1.8 LIQUID COLLECTION TANKS

The LCRS, consisting of interior bench collectors, bottom laterals and the mainline, was designed to gravity drain to an outfall line located at the toe of the overall refuse footprint (at the northern limit of the landfill). At this location, the LCRS outfall will discharge into one of two 10,000-gallon leachate storage tanks. Initially, one tank will be installed for storage of leachate. The second tank will be added, as needed, depending on actual flow rates. Although no groundwater is anticipated, the subdrain collection system will discharge to a separate 10,000-gallon storage tank. The storage tanks will be located in the southwestern corner of the ancillary facilities area.

B.3.1.9 RECYCLABLE MATERIALS DROP-OFF AREA

A recyclable materials drop-off area is proposed on the east side of the maintenance building. The drop-off area will have bins for the storage of source separated recyclable materials, such as newsprint, white paper, tin, aluminum, and glass. White goods will also be accepted and stored near the storage bins.

B.3.1.10 REVERSE OSMOSIS SYSTEM

The Agreement between the San Luis Rey Municipal Water District and Gregory Canyon Limited requires the installation of a reverse osmosis (RO) system. The 50-gallon per minute (gpm) RO system will be installed in the southwestern portion of the ancillary facilities area. The purpose of the RO system is to provide a groundwater treatment facility that is in place in the event of groundwater contamination. For details on the RO system, refer to Section B.5.1.8.

B.3.2 SITE SECURITY

Entry into the GCLF during business hours will be controlled by site personnel at the entrance facilities, which is the single point of public access to the site. Unauthorized access to the site will be controlled by perimeter fencing and/or topographical constraints. Lockable gates will be installed on the access road on the north side of the bridge and at the ancillary facilities area. Visitors to the site

will be required to check-in at the administrative office. Additional fencing will surround specific on-site facilities. The borrow/stockpile areas will not be fenced.

SECTION B.4

DISPOSAL SITE OPERATIONS

B.4 DISPOSAL SITE OPERATIONS

B.4.1 HOURS OF OPERATION

The GCLF will operate six days a week, Monday through Saturday, except holidays, for a total of 307 days per year. Solid waste operations, which includes the receipt, handling, and disposal of solid waste or the collection of source separated recyclable materials; cover operations; site grading and/or excavation, including controlled blasting and rock processing; and heavy equipment operations, will occur Monday through Friday between 7:00 a.m. and 6:00 p.m. and on Saturday from 8:00 a.m. to 5:00 p.m. Maintenance activities occurring within the maintenance yard or within the enclosed maintenance building, the operation of gas and leachate collection and treatment systems, and remedial activities required by a regulatory agency will not be limited to the hours of operation.

Traffic coming to the site before the hours of operation will be queued on the access road up to the fee booths/scales to prevent stacking of vehicles on SR76. To accommodate the queuing, the gates located at the north side of the bridge will be opened one hour prior to the hours of operation. Therefore, the entrance gates will be opened at 6:00 a.m. Monday through Friday, and 7:00 a.m. on Saturday.

B.4.2 PERSONNEL

Gregory Canyon Limited will be the permitted operator of the GCLF. Gregory Canyon Limited will maintain and/or provide full operations, engineering, administrative support staff. In addition, outside contractors/consultants may also be utilized. Actual day-to-day operations at the site will be conducted by a qualified contract operator. Upon approval of the project, Gregory Canyon Limited will select a qualified contract operator and provide the LEA with a copy of the negotiated contract, including appropriate personnel qualifications. Qualified outside contractors/consultants will be utilized in the areas of landfill operations and engineering. Landfill operations include, but are not limited to, refuse disposal operations, load checking and screening, routine site

maintenance, and groundwater monitoring as described in Section B.4.2.1. Outside contractors/consultants will be overseen by qualified Gregory Canyon Limited staff.

B.4.2.1 MINIMUM NUMBERS OF STAFF AND THEIR RESPONSIBILITIES

The number of employees needed to operate and maintain a sanitary landfill is dependent on the hours a facility is open, the daily tonnage received, and the overall areas to be maintained. Initial staffing will require fewer employees. Staff numbers will be increased as the landfill is developed, and the refuse inflow rate increases. The proposed staff to be provided for the GCLF, as shown in Table 6, is more than adequate to conduct disposal operations and site maintenance operations during peak operation. Their position titles and the number of staff in each position are shown below. Less staff may be utilized at the onset of disposal operations and added as waste inflow increases.

TABLE 6
GREGORY CANYON LANDFILL
SITE OPERATION STAFFING

DIVISION	STAFFING
- Superintendent	1
- Office Manager	1
- Site Manager	1
- Site Engineer	1
- Foreman/Inspector	1
- Equipment Operators/Refuse Load Inspectors	6
- Traffic Director/Spotter	1
- Fee Collectors/Scalehouse	3
- Teamster	1
- Mechanics	2
- Laborers/Litter Collection	2
Total Site Personnel	**20**

Actual staffing is dependent on the waste inflow rate. This level of staffing is based on handling the average (3,200 TPD) to peak (5,000 TPD) tons per day received. Initially, less staffing will be required to operate the facility in accordance with state minimum standards.

The following presents a general description of the GCLF operations and administration staff responsibilities.

- Landfill Operations Staff

  Landfill operations staff duties and responsibilities include: supervising disposal activities at the GCLF, proper receiving and handling of refuse including compacting and covering all refuse delivered to the site in an environmentally sound manner, hauling and stockpiling cover dirt, preparing fill area grades, controlling dust, constructing interim and permanent surface water drainage control facilities, providing safe access to the unloading areas, maintaining internal haul and maintenance roads, directing traffic, litter control, general nuisance control, providing inclement weather unloading areas and coordination of recycling activities. The above-mentioned activities will be conducted in compliance with applicable solid waste handling regulations. In addition, operations staff will receive ongoing training and will continually evaluate landfilling techniques to more efficiently operate the landfill. Proper records will be maintained and reporting will be conducted as required by regulations and permits. Landfill operations staff, as described in Section B.4.2, may be provided by qualified outside contractors/consultants and overseen by qualified Gregory Canyon Limited staff.

- Administration and Engineering Staff

  Landfill administration and engineering staff duties and responsibilities include: preparation and tracking of landfill operating budget, review of personnel and equipment needs, supervision of and accounting for fee collection, handling public inquiries and complaints, establishing landfill operating and design criteria, evaluating topographic data, monitoring the public drop-off area, coordinating/interfacing with regulatory agencies to ensure site compliance and proper record keeping. Engineering staff, as described in Section B.4.2, may be provided by qualified outside contractors/consultants and overseen by qualified Gregory Canyon Limited staff.

B.4.2.2 TRAINING

Training for operations personnel will be provided by the contract operator. The emphasis in training will be health and safety, hazardous waste identification, handling and storage procedures, environmental control systems management,

proper waste handling and disposal procedures and environmental mitigation. This training will provide site personnel with a thorough understanding of operator responsibilities, ensure that landfill operations are conducted under safe working conditions, minimize potential public health and safety problems, and maintain a high degree of compliance with all applicable solid waste handling and disposal regulations.

B.4.2.3 SUPERVISION

The operator will provide adequate supervision of a sufficient number of qualified personnel to conduct proper operation of the site in compliance with all applicable State and federal requirements. In accordance with 27 CCR, Section 20615, the EA, local health agency, and fire authority will be notified in writing of the names, addresses, and telephone number of the operator or responsible party(ies). A copy of the written notification will be placed in the operating record.

B.4.2.4 EMERGENCY CONTACT LIST

The names of the site personnel for the GCLF to contact in the event of an emergency are on the contact list included in Appendix E.

B.4.3 EQUIPMENT

B.4.3.1 ON-SITE EQUIPMENT

A variety of equipment will be used for the operation of the GCLF. On-site equipment will serve disposal and site maintenance needs to allow for operations of the GCLF in an environmentally sound manner and to comply with all applicable regulatory requirements. On-site equipment will be maintained in accordance with State minimum standards. Less equipment will be necessary during initial refuse disposal operations. The numbers and types of equipment utilized to meet operational requirements will be added as the landfill is developed and increased to accommodate a higher inflow rate. However, in the event of multiple equipment failure, a local rental company will be contacted to provide necessary back-up equipment. A detailed list of equipment is shown on Table 7.

TABLE 7
GREGORY CANYON LANDFILL
LIST OF OPERATING EQUIPMENT

Quantity	Description	Uses
4	Dozer	Push, compact, grade and cover refuse. Walk-in slopes, miscellaneous earthwork.
2	Compactor	Refuse and cover compaction.
2	Scraper (or equivalent)	Haul earth for cut and cover operations. One back-up is on site.
1	Water Truck	Control cover soil moisture content and dust control, landscape irrigation, and fire fighting.
6	Light Duty Vehicles	Transporting of landfill personnel around the site.
1	Motor Grader	Grade unloading deck, maintain internal roads and drainage control of decks. One back-up is on site.
1	Surge Bin	Loading bin for equipment and/or material.
1	Mechanics Truck	Maintenance of equipment.
1	Portable Rock Crusher	Crushing of rock material.
1	Fuel Truck	Fueling landfill heavy equipment.
1	Mobile Tire Shredder	Shredding of tires.

The available equipment listed in Table 7 does include stand-by. The equipment identified in this table represent initial maximum refuse disposal operations. In the event of multiple equipment failure, Hawthorne Machinery Company will be used for rental equipment. This company has seven branches in San Diego county to meet rental needs.

B.4.3.2 EQUIPMENT MAINTENANCE PROCEDURES

All operating equipment will be maintained in accordance with a preventative maintenance program to keep heavy equipment breakdowns to a minimum. Most repair and maintenance activities will be conducted on-site. Used oil, lubricants, and filters will be removed from the site and disposed of properly on a regular basis.

All environmental testing, monitoring and stationary equipment will be maintained and/or repaired by appropriate staff or outside vendors. Equipment maintenance activities will be conducted so as not to interfere with disposal operations and to maintain compliance with applicable State and federal regulations.

B.4.3.3 OPERATING SITE MAINTENANCE PROCEDURES

In addition to the equipment maintenance procedures discussed above, 27 CCR, Section 20750, requires an operator to implement a preventative maintenance program to monitor and promptly repair all defective or deteriorating support facilities, environmental controls, and containment systems for the landfill. All environmental monitoring and control facilities, ancillary features (i.e., access roads, signs, gates, fencing, landscaping), containment areas and all other on-site structures will be inspected and maintained as necessary.

B.4.4 MATERIALS HANDLING ACTIVITIES

This section addresses general materials handling activities required at the site including construction and daily operations activities.

B.4.4.1 CONSTRUCTION SEQUENCING

B.4.4.1.1 EXCAVATION/STOCKPILING OPERATIONS

Once the initial excavation for the site facilities area and the first stage of the Phase I refuse area has been completed, subsequent excavation/stockpiling operations will be conducted concurrent with refuse disposal throughout the development of the landfill. Soils excavated will be placed in two designated stockpile areas – Borrow/Stockpile Area A will be located west of the landfill footprint and Borrow/Stockpile Area B will be immediately southwest and adjacent to the landfill footprint (see Figure 2). Excavation and stockpiling operations will be conducted so as not to interfere with disposal and other ancillary operations. Proper drainage control will be maintained and the stockpile areas will be graded to promote lateral run-off of precipitation into drainage control facilities. For additional information regarding excavation/stockpiling activities, see Section C.2.

Rock crushing, which will be conducted concurrently with landfill construction, will occur onsite to facilitate the movement of excavated rock. A portable rock processing facility, which will include a crusher and screens, will initially be located on the southwestern portion of the landfill footprint, when it is needed. This equipment will be moved as the landfill excavation progresses up canyon. Excavated rock will be stored on-site for future use, ground for use as daily or intermediate cover, or used as base material for the internal haul roads. Any excess material may be exported off-site.

B.4.4.1.2 BASE PREPARATION/LINER PLACEMENT

Base preparation and liner placement is described in Sections C.2.2 and C.2.4.

B.4.4.1.3 FILL SEQUENCING

Fill sequencing operations required for the development of the landfill disposal areas are described in Section C.2.9.

B.4.4.1.4 FINAL GRADING

The proposed final grading contours for the GCLF are shown on Figure 9. Final landfill slopes were designed with an overall gradient of 3.5:1 with 20-foot benches every 40 vertical feet and the maximum landfill elevation, including the final cover system, will be 1,100 feet amsl. A slope stability analysis for the site was performed to verify the design and is included in Appendix C. The final deck area will have a minimum grade of three percent. This minimum deck area gradient is sufficient to maintain adequate drainage control and accommodate settlement.

Slight changes to the proposed final contours may be necessary in the future to achieve optimum drainage control and to prevent ponding and/or excessive erosion of completed fill areas or to reduce impacts associated with anticipated settlement throughout the post-closure maintenance period. The PCPCMP included in Part E of this report contains additional information regarding the final grading plan.

B.4.4.2 REFUSE UNLOADING OPERATIONS

Upon acceptance of waste for disposal at the entrance facility, vehicles will be immediately directed to the working face of the landfill. Signs will be posted along the internal haul roads to guide customers to the designated unloading areas. Commercial refuse vehicles (i.e., collection trucks and/or transfer trailers) will be directed to the working face, which will generally be maintained at the toe of the working face. Private vehicles (i.e., automobiles and/or pick-up trucks), if any access the site, will be directed to a separate tipping area away from the commercial vehicle unloading area. Separate commercial and private vehicle tipping areas reduce safety concerns for customers, allow for better

inspection of the refuse loads to detect prohibited materials, and expedite unloading for the commercial refuse vehicles.

As the refuse is being unloaded, landfill staff will continuously observe the refuse to monitor for prohibited materials. A comprehensive load checking program will be conducted at the landfill to detect hazardous waste delivered to the site and to prevent the material from being discharged to the landfill. Unacceptable waste identified by designated landfill staff will be separated or rejected. Detailed information regarding the Load Checking Program is discussed in Section B.4.4.2.1.

The GCLF will be operated utilizing the canyon and area fill methods of refuse disposal. Refuse is typically placed in lifts up to approximately 20 feet high and anywhere from 100 to 200 feet in length. Generally, successive lifts are constructed to create a series of adjoining cells. The process of constructing lifts is repeated until desired grades, both interim and final, have been achieved. Refuse placed during the working day will be compacted by using a dozer or compactor to complete the cell and then covered with soil or geosynthetic blankets ADC, as allowed under 27CCR, Section 20690(b)(1).

The size of the daily working face depends on the actual inflow rate conditions and the unloading of waste during the operational day. The unloading area will generally be maintained so that wastes can be immediately spread and compacted.

B.4.4.2.1 HAZARDOUS WASTE EXCLUSION PROGRAM

A hazardous waste exclusion program (HWEP) for the GCLF is included as Appendix F. The HWEP also includes a load checking program which complies with the state and federal regulations under 27 CCR, Sections 20220 and 20870. These regulations state that "Owners or operators of all Municipal Solid Waste Landfill (MSWLF) units must implement a program at the facility for detecting and preventing the disposal of regulated hazardous wastes as defined in Part 261 of this chapter (40 CFR Chapter 1) and polychlorinated biphenyl (PCB) wastes as defined in Part 761 of this chapter (40 CFR Chapter 1)".

The proposed HWEP for the GCLF was developed to discover and discourage attempts to dispose hazardous or other unacceptable wastes, including PCBs, at the landfill. The proposed HWEP contains the following major components:

- Descriptions of acceptable and prohibited wastes.
- A gamma-scintillation counter will be installed at the scale facility to detect radioactive materials.
- Random inspections of incoming loads unless the owner or operator takes other steps to ensure that incoming loads do not contain regulated hazardous wastes or PCB wastes.
- Records of any inspections.
- Training of facility personnel to recognize regulated hazardous waste and PCB wastes.
- Notification of the Director of the California DTSC, the EA, the County of San Diego Department of Environmental Health Services Hazardous Materials Division (a delegated agent for the DTSC), and the San Diego RWQCB, if regulated hazardous wastes or PCB wastes are discovered at the facility, in accordance with 27 CCR, Section 20870(a)(4).

Unsuitable wastes identified through the HWEP will be handled as follows:

(1) If the wastes pose an immediate risk to health, safety and/or the environment, site personnel will notify the emergency response unit of the Hazardous Incident Response Team (HIRT), a Joint Powers Authority (JPA) entity administered by the City of San Diego and the County of San Diego Department of Environmental Health. The generator of the hazardous waste will be responsible for the cleanup and if the generator cannot be identified, then the landfill operator will be responsible for cleanup of the wastes. The wastes will be transported by a licensed hazardous waste hauler for disposal at a permitted hazardous waste treatment and disposal facility.

(2) If wastes are in adequate containers and can be safely handled, waste will be stored on-site in a designated area to await proper disposal by a licensed hazardous waste hauler/recycler or, if the hauler who brought the waste can be identified, the hauler will be asked to remove the waste.

The designated hazardous waste storage area will be located in the southeast corner of the ancillary facilities area, as discussed in Section B.3.1.6 and shown on Figure 8, for the temporary disposition of wastes collected as part of the HWEP. This area will be specifically designed for the handling and storage of hazardous wastes, including secondary containment and approved storage containers which are safe and convenient for storing identified wastes.

On-site hazardous waste storage will be limited to 90 days or as required by applicable state laws and regulations prior to being transported to a permitted treatment, storage and disposal facility (TSDF). The "Accumulation Start Date" on the California hazardous waste label of each overpack drum containing hazardous waste will be monitored on a regular basis. Prior to shipment off site, all materials will be overpacked and manifested with a licensed hazardous waste hauler/disposer.

Unauthorized hazardous waste discharges will be reported to the following agencies:

California Regional Water Quality Control Board
San Diego Region
(858) 467-2952

Department of Toxic Substances Control
Cal-EPA Cypress Regional Office
(714) 484-5300

County of San Diego
Department of Environmental Health
(858) 694-2888

County of San Diego
Department of Environmental Health
Hazardous Materials Division
(619) 338-2222
(800) 253-9933

Load Checking Program

As previously discussed, refuse unloading activities will be continuously observed through the use of a full time spotter located at the tipping area. In addition, all landfill personnel will be trained to spot hazardous wastes which may be inadvertently contained within incoming refuse loads. As part of the overall HWEP, the operator will also, on a regular basis, randomly select a commercial load for a detailed load check. The driver of the load to be inspected will be asked to unload the vehicle on a portion of the flat deck area away from the commercial vehicle and private vehicle unloading areas. Designated landfill personnel will then inspect, search, and sort through the load looking for prohibited wastes. If no prohibited wastes are observed, a dozer will push the

load to the working face. If prohibited wastes are observed, the area will be cordoned off and the operator will follow the procedures outlined in the HWEP.

The load checking program was developed to conform with the requirements of 27 CCR, Section 20870 and the WDRs for landfills. The load checking program was designed to identify and remove hazardous and prohibited wastes from the municipal waste stream coming to the landfill. The load checking program is part of the HWEP, which includes procedures, policies, and the necessary reporting forms (see Appendix F). Specific components of the program include:

- Customer notification by signs, notices and verbal inquiries.
- Surveillance through visual inspection of waste loads and questioning of customers by scalehouse personnel.
- Waste inspection conducted on randomly-selected loads at the working face.

- A gamma-scintillation counter will be installed at the scale facility to detect radioactive materials.

These procedures are intended to prevent haulers from unlawfully disposing of hazardous wastes at the landfill. These procedures are also designed to identify hazardous wastes at the time of disposal, so the disposer can be directed to remove the hazardous waste from the disposal location. If the hauler associated with the hazardous waste is identified, the hauler is responsible for the cleanup of any spill.

Training for the load checking program will be tailored to each employee according to his or her responsibilities in the program. Inspection personnel will be instructed to report any prohibited material found hidden in loads of trash and to take license numbers, vehicle descriptions, and names of the responsible party. All hazardous materials will be removed immediately if observed during unloading and returned to the customer or appropriately stored.

Landfill staff assigned the duties required in the waste load checking program, including visual inspection of the working face, will be formally trained to recognize suspicious or potential containers of hazardous waste and to perform the reporting requirements of this program.

As discussed above, gamma-scintillation counters will be installed at the scale facility. Radiation portal monitors will be installed in each scale house to scan

incoming waste for radioactivity. Each scale will have a dedicated radiation monitor capable of detecting gamma radiation. An audible alarm will sound if radiation is detected. The alarm point will be set at least twice the average local background levels as recommended in *Detection and Prevention of Radioactive Contamination in Solid Waste Facilities* (Conference on Radiation Control Program Directors, Inc.). Vehicles hauling materials which contain detectable levels of radioactive waste will be segregated and denied entry to the landfill.

To insure that radiation detectors are properly calibrated, each existing, new, or repaired monitor will be tested monthly with a check-source supplied by the radiation monitor manufacturer.

B.4.4.3 SPREADING AND COMPACTION

Once customers have disposed of their refuse at the designated unloading areas, a compactor or dozer will spread the waste over the working face in approximately two-foot thick layers. A compactor or dozer will then make repeated passes over the working face to thoroughly compact the refuse. The working face is typically sloped to a gradient of approximately 5:1 (horizontal to vertical) or less to maximize refuse compaction. Refuse is spread and compacted in this manner to minimize voids in the daily refuse cells, to inhibit vector propagation, to reduce windblown litter, and to maximize site capacity.

Large, bulky wastes may be separated to prevent bridging of the surrounding refuse, or may be placed in the lower portion of the advancing lift to be thoroughly crushed by the landfill compactor.

B.4.4.4 INCLEMENT WEATHER OPERATIONS

Rain and/or high winds are the predominant inclement weather conditions which may cause the operator to adjust on-site waste handling and disposal procedures. Landfill operations are typically not hampered by mild wet weather conditions; however, when heavy rains cause the unloading areas (commercial and private vehicles) to become muddy and unusable, operations will be moved to a designated wet weather area, generally near an improved internal road, to provide continuous operation during inclement weather. Traffic and vehicle access to the unloading areas will be provided by paved roads and/or tightly compacted dirt or base rock roads. The unloading area may also be improved

by tightly compacting the dirt and/or placement of rock base material. Stockpiles of soil material will be maintained near the designated alternative unloading area to ensure that an adequate supply of soil material will be available to cover all wastes. An approved ADC material may also be utilized minimizing the need to stockpile near the wet weather unloading area.

When high wind conditions occur, the unloading areas (commercial and private vehicles) will typically be reduced in size and, whenever possible, placed in a portion of the facility that affords protection from the wind. Additional equipment may be utilized to expedite the spreading and compacting of the refuse as soon as it unloaded. Cover operations may also be implemented earlier in the day to reduce the area of exposed waste on the working face. In addition, portable litter fencing may also be utilized downwind around the working face. Litter control procedures are discussed in Section B.5.3.3.

B.4.4.5 DAILY COVER PLACEMENT

The purpose of daily cover soil or an equivalent ADC approved by the EA, is to provide a suitable barrier to the emergence of flies, prevent windblown trash and debris, minimize the escape of odors, prevent excess infiltration of surface water, and hinder the progress of potential combustion within the landfill. Daily cover in the form of soil material compacted to a minimum thickness of six inches or a geosynthetic blanket. ADC will be placed over all exposed refuse at the end of each working day. Cover material will be transported by scrapers to the working face where it will be spread and compacted by either the scrapers or a dozer.

B.4.4.5.1 ALTERNATIVE DAILY COVERS

Introduction

The CIWMB promulgated regulations in 27 CCR, Section 20690, for the use of ADC at Class III Landfills. These regulations contained in 27 CCR, Division 2, Subdivision 1, Chapter 3, Article 2 provides the requirements to control the use of ADCs at solid waste landfills and the reporting of that use. Site-specific demonstration projects have shown that specific ADC materials can be used as a suitable daily cover (e.g., in lieu of soil) if used in accordance with the ADC standards established in 27 CCR, Section 20690. Site-specific demonstration

projects are generally no longer required for the following ADC materials, if used as specified in 27 CCR, Section 20690(a) and (b):

- Geosynthetic Fabric or Panel Products (Blankets)
- Foam Products
- Processed Green Material
- Sludge and Sludge-Derived Materials
- Ash and Cement Kiln Dust Materials
- Treated Auto Shredder Waste
- Contaminated Sediment, Dredge Spoils, Foundry Bonds, Energy Resource Exploration and Production Wastes
- Compost Materials
- Construction and Demolition Wastes
- Shredded Tires

Geosynthetic blankets and processed green material will be used as ADC at the GCLF in accordance with 27 CCR, Section 20690 at the outset of active waste filling operations. If other ADCs are proposed for future use, the standard operating procedures for the additional ADCs will be added to the JTD and submitted to the LEA and other regulatory agencies as JTD amendment or permit revision as applicable.

The use of ADC at the GCLF will reduce on-site cover demands and maximize refuse capacity. The use of ADC has been shown to reduce refuse-to-daily/intermediate cover ratios from 4:1 to 7:1, which could reduce the on-site soil cover need by as much as one-third. Geosynthetic blankets will be used at the outset of refuse disposal operations at the landfill in conjunction with soil. Geosynthetic blankets will be used as specified in 27 CCR, Section 20690(b)(1). Handling and general procedures for the geosynthetic blanket product are included in Appendix F-1.

B.4.4.6 INTERMEDIATE COVER PLACEMENT

Intermediate cover is defined in 27 CCR, Section 20164 as cover material on areas where additional cells are not to be constructed for 180 days or more to control vectors, fires, odors, blowing litter, scavenging, and drainage. In accordance with 27 CCR, Section 20700(a), a minimum 12-inch thick layer of suitable cover material or equivalent (as approved by the EA) will be placed over the top, side slopes and working face of the advancing lift, refuse cell or portions of the disposal area where no additional refuse is to be deposited within 180 days.

B.4.4.6.1 ALTERNATIVE INTERMEDIATE COVER

Title 27, Section 20700(b) allows an operator to place alternative materials of alternative thickness (other than at least 12 inches of earthen material) for intermediate cover as approved by the EA with the concurrence of the CIWMB, provided that the owner or operator demonstrates that the alternative material and thickness control vectors, fires, odors, blowing litter, and scavenging without presenting a threat to human health and the environment. The proposed use of an alternative intermediate cover (AIC) would require a site-specific demonstration project and approval of the RWQCB. Demonstration projects will be approved by the EA with concurrence by the CIWMB pursuant to 27 CCR, Section 20700(d).

No AICs are currently proposed for the GCLF. In the event that such an AIC is proposed, Gregory Canyon Limited will comply with the requirements of 27 CCR 20700 and will obtain approval from the appropriate regulatory agencies.

B.4.4.7 FINAL COVER

The purposes of a final cover are to minimize surface water intrusion, accommodate settlement and subsidence, isolate wastes from the surface, and reduce the potential for odors and gas emissions. The cover also provides a base for vegetation, which will reduce drainage velocities and minimize erosion and abrasion of the cover. The State minimum standard prescriptive design for a landfill requires a single low-permeability soil layer cover or a cover which meets the permeability of the proposed liner system.

Several factors were taken into consideration in evaluating the cover design for the GCLF to ensure adequate performance of the final cover. These factors included regulatory requirements, the geometry of the landfill, local climatic conditions, potential landfill settlement, erosion protection, vegetative growth, the waste liner system design and end use of the land at closure. Section E.1.3 of Part E includes detailed information regarding the final cover design at the GCLF. For additional information on material availability, refer to Section C.2.2.3.

B.4.4.7.1 ALTERNATIVE FINAL COVER DESIGN CONSIDERATIONS

The federal regulations under 40 CFR, Section 258.60 and State regulations under 27 CCR, Section 20080(b) allows an operator to propose an alternative final cover to the standard prescriptive cover design. To date, some alternative final cover designs have been approved by several of the Regional Water Quality Control Boards and the CIWMB. In the future, an alternative final cover design may be developed and proposed for approval at the GCLF. Should an alternative cover design be considered, the appropriate modeling will be performed and presented to the reviewing agencies to ensure consistency with the performance of a prescriptive cover system. Upon approval of the alternative final cover design, the PCPCMP would be updated to incorporate the changes in design.

B.4.4.8 COVER AVAILABILITY

Excavated colluvium and weathered bedrock material will be stockpiled for use during the operation and closure of the landfill. Assuming a 4:1 cover ratio, approximately 11.5 million cubic yards (mcy) would be needed for operations during the life of the landfill. An additional 1.2 mcy of material will be necessary to provide final cover over the site. The proposed landfill development will include the excavation of approximately 7.9 mcy of topsoils, alluvium/colluvium or weathered bedrock from within the landfill footprint that can be used for cover material. Excavated colluvium and weathered bedrock material will be stockpiled for use during the operation and closure of the landfill. Based on drilling conducted on the site, approximately 60 percent of the material excavated from the landfill footprint, or 3.9 mcy, could be used directly as cover material. The approximate volumes of soil material to be excavated from the Borrow/Stockpile Areas A and B are 1.3 mcy and 3.2 mcy, respectively. The entire excavated quantity from the borrow/stockpile areas will be available for cover needs since all of the material is colluvium and weathered bedrock. Therefore, approximately 8.4 mcy of material will be available on-site for cover, leaving a shortfall of readily useable material over the life of the project of 3.1 mcy. This shortfall will be offset by on-site processing or weathering of rock material and/or the use of ADC. The use of ADC has been shown to reduce refuse-to daily cover ratios from 4:1 to 7:1. The use of ADC could reduce the project demand for soil cover by as much as one-third. For additional information on material availability, refer to Section C.2.2.3.

B.4.5 RECYCLING AND RESOURCE RECOVERY

B.4.5.1 INTRODUCTION

Recycling and resource recovery operations are important to conserving landfill space throughout the State of California. Legislation under AB 939 was enacted in 1990 to establish mandatory recycling goals. The specific actions, activities and programs to be implemented within a given county were required to be incorporated into an integrated waste management plan. The GCLF will be part of the County of San Diego's solid waste system.

Therefore, recycling and resource recovery operations will be encouraged by Gregory Canyon Limited through the operation of a public drop-off area for source separated recyclables to be located on the east side of the maintenance building. Public salvaging will not be allowed at the GCLF and no salvaging operations other than the public drop-off area are planned at this time.

B.4.5.2 STORAGE OF SALVAGEABLE GOODS

The source separated recyclable materials will be stored in the drop-off area, which will be located on the east side of the maintenance building. The drop-off area will have bins for source-separated recyclable materials, such as newsprint, white paper, tin, aluminum, and glass. White goods will also be accepted and stored near the recycled bins area.

B.4.5.3 REMOVAL OF SALVAGED GOODS

The storage of source separated recyclables will be limited to a duration which will not result in health or fire problems. These materials will be kept away from disposal operations and will be limited to a volume and storage time as approved by the EA in accordance with 27 CCR, Section 20710(c).

B.4.5.4 NON-SALVAGEABLE ITEMS

The only salvaging operations allowed at the GCLF will be those described in Section B.4.5.1. The types of materials which are considered to be non-salvageable items include drugs, cosmetics, foods, beverages, medical wastes,

and other waste materials capable of impairing public health are specified in 27 CCR, Section 20720.

B.4.5.5 VOLUME REDUCTION AND ENERGY RECOVERY

Volume reduction activities will not be conducted at the GCLF with the exception of the collection of source separated materials as part of the recycling and resource recovery operations described in Section B.4.5.1 and waste tire processing or shredding described in Section B.1.5.2.3. The more non-traditional volume reduction activities such as incineration, bailing, shredding or composting will not be conducted at the landfill.

B.4.6 HEALTH AND SAFETY

B.4.6.1 SANITARY FACILITIES

Portable chemical toilets will be located at the northern end of the ancillary facilities area. The operator will contract with a sewage disposal service to remove effluent from the chemical toilets for off-site treatment and disposal. Handwashing facilities will also be available in accordance with 27 CCR, Section 20550.

B.4.6.2 POTABLE WATER SUPPLY

Potable water will be supplied by bottled drinking water and will be available to all employees.

B.4.6.3 COMMUNICATIONS

Telephones will be available within the offices in the ancillary facilities area and at each of the fee booths for computer links with the truck scales.

B.4.6.4 LIGHTING

Disposal operations will generally not be conducted during hours of darkness unless it is necessary to complete daily cover activities at the end of the working day. However, all disposal equipment will be outfitted with sufficient lighting and/or portable lighting fixtures or stands will be available to provide safe

working conditions during end of the day refuse cover operations during winter months.

Security lighting will be provided around the buildings in the ancillary facilities area. Lighting will be low impact, focused, and shielded to minimize spill light into the night sky or adjacent properties. All lighting at the GCLF will comply with the County Light Pollution Code.

B.4.6.5 SAFETY EQUIPMENT

Safety equipment will be provided to landfill personnel as necessary and will include: hard hats, reflective vests, ear and eye protection and filtration masks. In addition, fire extinguishers will be located in on-site buildings, operating equipment and maintenance and support vehicles.

SECTION B.5

DISPOSAL SITE CONTROLS

B.5 DISPOSAL SITE CONTROLS

B.5.1 LIQUIDS MANAGEMENT PLAN

The liquids management plan covers the collection monitoring, storage, handling, and ultimate disposal of liquids originating in the subsurface regions of the landfill. In addition, the liquids management plan also includes the monitoring and handling of surface water run-off. A detailed description of the surface water control system is included in Section C.2.8.

The three possible types of subsurface liquids associated with municipal waste landfills are leachate, groundwater, and gas condensate from the landfill gas collection system. The components of the GCLF's liquids management system include the LCRS, the subdrain collection system, groundwater treatment system (e.g., the reverse osmosis [RO] system), surface water control and monitoring network, and the landfill gas condensate collection, storage and disposal system. A Contingency Plan has been prepared providing procedures to be followed in the event of a failure in waste handling facilities or containment systems and is included as Appendix F-2.

B.5.1.1 LEACHATE CONTROL AND MONITORING SYSTEMS

B.5.1.1.1 INTRODUCTION

Leachate is generated when water passing through the landfill comes in contact with the buried refuse. Potential sources of water for leachate formation include infiltration of rainfall, surface water from surrounding areas draining onto the landfill, and/or moisture contained within the waste materials. The composition of leachate is highly dependent upon the types of waste received. The operational procedures and engineering design features for the GCLF are intended to prevent or minimize leachate generation, detect leachate generation and movement, contain and collect generated leachate, and store leachate until it is disposed of off-site.

B.5.1.1.2 LEACHATE COLLECTION AND REMOVAL SYSTEM

The landfill design includes a composite liner system. The liner will be overlain by a LCRS designed and constructed to meet or exceed minimum state and federal regulations. The quantity of leachate expected to be generated within the lined portion of the landfill was estimated by modeling the water balance in the landfill site. The LCRS is designed to collect and remove a minimum of twice the anticipated maximum daily volume of leachate generated from within the refuse prism, as well as maintain less than a 30-cm (12-inch) depth of leachate over the composite liner system. In fact, based on the leachate generation analysis the peak daily head on the liner will be 0.25 inches.

In the bottom area, the LCRS will consist of a continuous gravel blanket and an integrated dendritic drainage pipe collection network made up of lateral collectors and a mainline pipe. For slope areas (i.e., those areas within 5:1 gradients or steeper), the LCRS will consist of a pipe-and-gravel collection system constructed on the interior benches. This bench collection system will be connected to the bottom area LCRS pipe network. The LCRS laterals and bench collection piping will discharge into a mainline placed down the center of the refuse area.

The LCRS was designed and will be operated to function without clogging through the scheduled closure of the unit and during the post closure maintenance period in accordance with 27 CCR, Section 20340(d). Clean-outs were incorporated into the LCRS design and are available to flush debris from the LCRS pipes. The clean-outs will be utilized to annually test the LCRS flow capability. Specified volumes of clean water will be pumped into each cleanout prior to waste placement. Flow rate and volume will be recorded. This same method will be repeated each year to determine system performance. A comparison of the most recent test results against results from previous years will be conducted. In the bottom area, the LCRS design, as also described in Section C.2.5.4, will consist of a continuous gravel blanket and an integrated dendritic drainage pipe network. The LCRS pipes will be placed in V-shaped gravel trenches which will intercept the leachate flow. The pipes are designed to handle many times the anticipated leachate flow. In the unlikely event that localized clogging occurs, the surrounding gravel pack allows the leachate to flow around the restricted area. To minimize the potential for clogging, 85% of the gravel will be larger than the diameter of the perforations in the pipe. In

addition, the bottom area LCRS gravel pack will be overlain by geotextile fabric to prevent fines in the operations layer soil material from clogging of gravel.

The side slope LCRS will consist of collectors (also known as a "burrito" type collectors) placed at each interior bench. These collectors are perforated pipe surrounded by gravel and then wrapped with geotextile filter fabric. The benches are sloped to drain any leachate which makes its way through the operations or protective layer back to the toe of the bench/upper slope interface. A strip of tri-planar geonet will also be placed over the remaining flat area of the bench to direct liquid flow for added redundancy. Geonet is designed and manufactured with landfill-specific conditions in mind including flow rate factors of safety. Geonet will accommodate heavy loading up to a pressure of 25,000 psf. This equals 240 feet of trash placed at an average density of 1,500 lbs/cy. Geonet is also designed to resist biofouling.

The inward gradient of the interior cut slope benches is more than adequate to direct flows into the "burrito" collector.

Any leachate that comes into contact with the slopes will flow along the operations layer/refuse-interface to the benches, then either through protective layer and into the bench collectors or continue all the way down to the bottom areas and into the LCRS. A detail of this particular configuration is presented on Figure 14, Detail 5/17. The LCRS bench collector and riser junction are presented on Figure 15, Detail 4/18.

The entire LCRS system is designed to drain by gravity flow to a solid outfall pipe located at the northwest corner of the refuse prism. The outfall pipe is connected to two 10,000-gallon leachate collection storage tanks located in the southwest corner of the ancillary facilities area. The leachate storage tanks will be routinely monitored by the operator in accordance with the site specific WDRs. If liquid is detected during routine monitoring, a grab sample will be taken and analyzed in accordance with the WDRs. Leachate collected in the storage tanks will be transported off-site for treatment and disposal. There are facilities located in San Diego and Los Angeles counties that can dispose of any leachate that is collected. Section C.2.5 contains additional information regarding the LCRS design.

B.5.1.1.3 LEACHATE VOLUMES

In order to develop the proper design criteria and performance parameters for the LCRS, leachate generation rates were calculated using the Hydrologic Evaluation of Landfill Performance Version 3 (HELP3) computer program, which uses representative rainfall and evapotranspiration data to calculate the amount of leachate that might be generated in a Municipal Solid Waste Landfill (MSWLF). This program takes into account the total area landfilled, representative precipitation patterns, representative evapotranspiration, and the hydraulic conductivity of various construction materials to calculate leachate generation and accumulation. Based on the results of the HELP3 analysis, it is anticipated that leachate generation will be of a low volume during the active operations and even less after closure.

Daily and peak leachate production rates from the HELP3 analyses were used to size the various LCRS components. The results of this analysis are presented in Section C.2.5.3. The leachate generation analysis was completed by GeoLogic Associates (GLA) is included as part of Appendix C.

B.5.1.1.4 ANALYSIS OF POTENTIAL IMPAIRMENT TO GROUNDWATER

The alluvial valley that forms the Pala groundwater basin has an average width of 2,600 feet and a maximum depth of about 240 feet (average thickness of 150 feet). The groundwater gradient in the basin is approximately 0.004 feet/feet (horizontal displacement of 400 feet to one vertical foot), which is similar to the topographic gradient of the ground surface. Depths to water were estimated to range from less than five feet to approximately 10 feet below ground surface. The average hydraulic conductivity of the alluvial sediments was estimated to be about 80 to 100 feet/day, with higher conductivity materials in the main river channel and lower conductivity materials (8 feet/day) skirting the edges of the valley (Geraghty & Miller, 1988).

The proposed landfill will occupy one of the tributary canyons to the Pala groundwater basin. The western part of the basin is managed by the San Luis Rey Municipal Water District, which in 1995 requested an assessment of potential impacts of a leachate release from the proposed landfill on the basin. At the request of the SLRMWD, computer model simulations of groundwater flow in the Pala Basin in the vicinity of the proposed landfill were performed and a simulation

of the expected groundwater flowpath from the landfill was presented (GLA, 1995). Estimated worst-case leakage from the landfill was modeled, as was its affect on identified production wells (ones from which water is extracted) within the basin. The analysis assumed that the leachate containment systems incorporated in the project design meet the requirements for environmental protection mandated by U.S. and California EPAs. The computer model is summarized below, and is provided in Appendix C.

Using Pala Basin hydrogeologic characterization summary input data, a two-dimensional groundwater flow model was developed using the finite difference computer program Flowpath (Franz and Guiguer, 1992). Constituent transport modeling with the Flowpath computer program is accomplished with the use of particle tracking techniques, which simulate constituents as "particles" that follow the groundwater flowlines.

Two conditions were simulated. The first was to simulate groundwater flow under existing conditions with a worst case leakage through the liner of about 10 gallons per day per acre (1,850 gallons per day for the 185-acre area) and head conditions in the Pala basin at levels approximately equal to those shown on the Geoscience (1993) hydrogeologic base map. The release is assumed to be a point source and is modeled as an injection well. The second simulation involved a lower groundwater elevation approximately 10 feet (20 feet below ground surface) in the southwest corner of the basin, as could happen if increased pumping took place during extended drought periods.

The first model showed that steady-state groundwater flow in the Pala basin can be reasonably assumed to follow the topography, with flow lines following the general trend of the river (Figure 10a). Owing to slightly increased recharge in the vicinity of the river, groundwater velocities are higher immediately adjacent to the trace of the river. Figure 10a also shows the predicted pathways of particles potentially released from the landfill. As shown, the particle pathways could extend past wells #41 and #42 (San Luis Rey Water District designations) when allowed to flow under steady state conditions. (Both of these wells are within the footprint of the property owned by Gregory Canyon Limited, at least 2/3 of a mile from the down-gradient boundary). On a transient simulation, the particles would need approximately 5.5 years to travel the distance of 2,000 feet between the toe of the landfill and wells #41 and #42, at an average flow velocity of approximately one foot per day.

From this point, the particle pathways then extend along the southern perimeter of the canyon until the particles intercept the point of constriction within the canyon, at the base of the bluff where the Verboom homestead is located on the west side of the property (within the footprint of the property owned by Gregory Canyon Limited, and at least 1/3 of a mile from the down-gradient boundary). At this point the pathway merges with the underflow of the San Luis Rey River, which would conceivably then carry the particles farther downstream.

Figure 10b illustrates the second groundwater flow simulation for the case where groundwater head levels have been reduced by 10 feet in the southwest part of the basin to a level approximately 20 feet below ground surface. As a result of the reduced groundwater head levels in the downgradient part of the model, a steeper groundwater gradient is induced. The net effect is slightly higher groundwater flow velocities in the central portion of the basin. Though there is a resulting change in the groundwater flow velocity, the change in the trajectories of particles is very small as demonstrated by the almost identical particle tracks calculated for the second simulation (Figure 10b). Under these conditions, the particles would need approximately 4.9 years to travel the 2,000 feet between the toe of the landfill and wells #41 and #42, at an average flow velocity of approximately 1.1 feet per day.

Using the particle-tracking model data, which simulates advective flow along groundwater flow lines, constituents in the groundwater such as volatile organic compounds (as identified by EPA Method 8260), or increased concentrations of sodium, chloride, and total dissolved solids could be detected in Wells #34, #41, and #42 assuming a worst case leakage scenario of 10 gallons per day per acre. Based on typical concentrations and estimated quantities of leachate generation, GLA (1995) estimated that as much as 1.0 pound/day of sodium, 7.5 pounds/day TDS, and 1.2 pounds/day of chloride could be added to the basin by a worst case leakage scenario. Additional discussion of potential release scenarios from the waste management unit that might impact groundwater or surface water is provided in B.5.1.5.

Another source of groundwater impacts is from landfill gas produced by the in-place refuse (see Section B.5.1.5.2). Although there are many factors that effect the rate and quantities of landfill gas produced (e.g., moisture content, refuse density, age and composition), all landfills produce landfill gas in the course of biological decomposition of the waste. The greatest amount of landfill gas is

generated during the methanogenesis phase, when the gas concentration reaches 50 percent by volume. This phase may occur in three months in wet refuse to perhaps never in dryer materials. Over time, the landfill would be expected to produce methane concentrations at 40 to 70 percent by volume until the refuse organics are depleted sufficiently to create a decline in the production levels. Typically, methane production from refuse may occur in refuse that is older than 30 years, but the rate of production is low (McBean, 1995). In addition, dry conditions reduce the activity of most organisms and can lead to increased air access to the interior of the landfill and reduce the methane generation.

With the continued production and accumulation of landfill gas, gas pressures will increase causing the gas to migrate beyond the confines of the refuse into the atmosphere and into the surrounding area. Upon exiting the refuse prism, landfill gases may also impact groundwater in two ways. First, where groundwater is relatively shallow, landfill gases may mix directly with groundwater. The second and more common mode occurs when the warm landfill gases migrate to the cooler vadose zone and the water vapor associated with the landfill gas condenses to the liquid phase carrying with it some VOC components. Once condensed, these landfill constituents may migrate vertically downward through the unsaturated zone to groundwater, following a similar migrational pathway to that described above.

However, landfill gas control, and thus reduced impacts for groundwater, is an important element of landfill management. Included in the control of landfill gas is the placement of cover materials to limit the infiltration of water through the landfill surface, and the placement of landfill gas extraction wells to recover the landfill gas. Additional discussion of landfill gas controls and monitoring is provided in Sections B.5.2 and C.2.7. Landfills with waste containment systems (i.e., liner systems) further limit landfill migration away from the refuse prism and subsequently into the vadose zone and/or attendant groundwater.

The GCLF will be monitored on a quarterly basis in accordance with site-specific WDRs issued by the RWQCB. If impairment to groundwater is observed through the approved Detection Monitoring Program (DMP), evaluation monitoring will be triggered and if necessary, corrective action. This JTD presents a discussion and cost estimate of the reasonable foreseeable release in Section B.5.1.5. Additionally,

Gregory Canyon Ltd. will secure financial assurance to fund corrective action in the event of a release.

B.5.1.2 SUBDRAIN SYSTEM

A subdrain system will be constructed as part of the waste containment unit. Although groundwater seepage is not anticipated, this system is designed to collect and control groundwater which intersects the bottom subgrade surface. The subdrain system will discharge to a storage tank in the ancillary facilities area. If groundwater is observed, a sample of the liquid will be collected and the subdrain system will be monitored for the presence of contamination in accordance with the WDR parameters on the slope areas. A detailed discussion of the subdrain system is provided in Section C.2.3.

As a contingency, in the event that localized groundwater seeps are encountered in the canyon and/or the proposed cut slopes, this water will also be managed. Seeps encountered above the active development areas will be directed into the perimeter surface water control system (i.e., perimeter channels). In this event, the design also includes provisions for a subdrain system beneath the composite liner over the slope areas.

The seeps will be measured for flow volume to determine the exact design of the subdrain collector. Once liner construction reaches the observed seep elevation, a localized subdrain collection feature will be installed. The subdrain feature utilized will be a chimney drain. Based on seep flows, the chimney drain will be constructed consisting of either a geonet or trench-type collector. A geonet strip collector will be constructed and used for lower flow seeps and placed from the seep to the next lower bench into a section of slotted pipe surrounded with gravel and wrapped in geotextile. The slotted pipe will transition to solid pipe gravity flowing to the floor area subdrain system. Higher flow seeps may warrant a trench collector type chimney drain. A trench will be cut into the side slope from the next lower bench up to the seep. The trench will be filled with gravel and wrapped with geotextile. A perforated pipe can also be added for additional flow capacity. The trench size will be dictated by flow rates. The trench collector will connect at the bench and eventually to the floor subdrain system similar to the geonet collector.

As discussed in Section B.2.2.2, to permit discharge of extracted groundwater to a waterway, the RWQCB also regulates the General NPDES Permit Authorization for Discharge of Groundwater to Surface Waters. Although no groundwater is anticipated to accumulate in the subdrain system, a permit would be required to discharge the groundwater collected by the subdrain system beneath the landfill to the San Luis Rey River. The discharge is currently regulated under RWQCB Order No. 2001-96 for groundwater extraction and similar waste discharges to surface waters within the San Diego Region, except for San Diego Bay. In the unlikely event that there is a measurable accumulation of groundwater in the subdrain system collection tank, a permit application package would be prepared and submitted to the RWQCB for subdrain water discharges.

B.5.1.3 GROUNDWATER MONITORING SYSTEM

The groundwater monitoring program at the GCLF will be implemented in accordance with State water protection requirements under 27 CCR, Chapter 3, Subchapter 3, Article 1 (Article 1) through site-specific WDRs issued by the San Diego RWQCB. The water quality monitoring system will be designed and certified by a registered geologist or registered civil engineer in accordance with 27 CCR, Section 20415(e)(1).

Specifically, the water quality protection standards include: establishment of monitoring systems for the groundwater, surface water, and unsaturated zone, including background and compliance monitoring points for each medium; establishment of constituents of concern; establishment of monitoring parameters; and establishment of a monitoring protocol and a compliance period. In accordance with 27 CCR, Section 20410 an operator must continue monitoring until the discharger (GCLF) demonstrates continuous compliance with the sites established Water Standard for three consecutive years. The compliance period for the GCLF is the active life of the site, anticipated to be 30 years based on the projected inflow rate plus the minimum 30-year post-closure maintenance period, or a minimum total of 60 years. However, the compliance period will be conducted for a period of time such that compliance with 27 CCR, Section 20410 is achieved.

The objectives of the water quality monitoring system for the GCLF are to:

- Characterize background groundwater quality.
- Detect changes in water quality that may result from changes in recharge, possible landfill leakage or other landfill-related factors before such changes affect off-site water quality.
- Monitor groundwater elevations and gradients around the GCLF.
- Fulfill RWQCB WDRs for groundwater monitoring.

The proposed Monitoring and Reporting Plan (M&RP), which includes a Sampling and Analysis Plan, to meet these objective is included in Appendix G.

The water quality monitoring system for the GCLF will provide for the monitoring of surface water and groundwater. The groundwater monitoring points discussed in the following sections were established for WDRs in compliance with 27 CCR, Article 1, and reflect the following: the results of hydrogeologic investigations; current site conditions; and implementation of a DMP.

Six phases of geologic and hydrogeologic characterization have been completed at the site and were used to design the monitoring well network discussed below. An Initial Study was completed by Geotechnical Consultants, Inc. for the County of San Diego and the U.S. Department of Interior in 1989. The second and third phases were completed by Geraghty & Miller in 1988 and 1990, respectively. The fourth phase comprised the work of Woodward-Clyde completed in 1991 and reported in 1995. The fifth phase was the hydrogeologic study completed by GLA in 1997 and the sixth phase, also completed by GLA (1998), addressed geotechnical issues. GLA has also completed supplemental reports to address specific concerns relating to the hydrogeology of the site. Specifically, these studies include a report entitled "Phase 5 Supplemental Investigation Results of Pumping Tests" by GLA (2001) conducted to better characterize the hydraulic properties of the bedrock aquifer beneath the site, and a report summarizing a two dimensional groundwater flow model (GLA, 1995) to assess impacts of a release from the landfill to the Pala Basin. Each of these reports has been incorporated into one "master" Geologic, Hydrogeologic, and Geotechnical Investigations Report (GLA, 2003) and included as Appendix C.

Finally, following RWQCB review of the May 2004 JTD, the RWQCB requested that the groundwater monitoring network be installed and tested to demonstrate that the proposed monitoring network will be able to provide the earliest detection of a release of waste constituents from the proposed solid waste management unit at Gregory Canyon. In response to this request, GLA drilled, logged, constructed, and tested seven bedrock groundwater monitoring wells across the mouth of Gregory Canyon (at the downgradient limit of the proposed landfill); modified two wells (GLA-2 and GLA-10) to grout up the lower open hole sections of these wells; and drilled, logged and constructed two replacement alluvial wells for the groundwater monitoring network. Results of this drilling and aquifer testing program are summarized in a supplemental report to the Geologic, Hydrogeologic and Geotechnical Investigations Report (GLA, 2003) and are included in Appendix C-1.

B.5.1.3.1 GROUNDWATER MONITORING WELL LOCATIONS

Based on our hydrogeologic investigations, the alluvial and shallow bedrock systems are interconnected and groundwater freely communicates between them, although the quantity of water transmitted to the alluvial aquifer from the fractures in the bedrock is minor relative to the volume of water transmitted through the alluvium. Though the alluvial system represents the zone with the highest overall hydraulic conductivity, these materials will be removed within the landfill footprint (i.e., the landfill will be underlain by bedrock and engineered fill), and a release from the landfill would be detectable in the fractured bedrock flow system first. As a result, a dual detection monitoring system, which includes dedicated wells in both the alluvial and the bedrock fracture flow systems was installed. The DMP will include downgradient wells to collect representative samples of groundwater at the downgradient limit of the landfill, or "point of compliance", and upgradient wells to collect samples of groundwater that are representative of "background" conditions. In addition, cross-hole testing has been performed following well construction to verify that there is hydraulic connectivity between wells and that the monitoring wells, as currently constructed, would be capable of detecting a contaminant because all fractures are recharged from the same source. Further discussion of the cross-hole pumping tests performed along the point of compliance are provided in Appendix C-1.

The groundwater monitoring system at the GCLF will include a total of 20 wells, 16 of which monitor the bedrock fractured flow system. Background bedrock wells include wells GLA-4, GLA-5, GLA-11 and future well GLA-18 (located on the east side on the middle SDG&E utility pad). The downgradient point-of-compliance wells within the bedrock fracture flow system include wells GLA-2, GMW-1, GLA-12, GLA-13, GLA-14, and recently constructed wells GLA-A through GLA-G (Figure 10C). Wells GLA-1, GLA-3, and GLA-10, will be utilized as water level measuring station and as contingency monitoring wells. In addition, though wells GLA-7 and GLA-8 are located within the future landfill footprint, they will also continue to be used as water level measuring stations until they are formally abandoned prior to landfill development in that area. It should be noted that in the event that facility construction requires the destruction of any of these wells (i.e., an existing well located in the ancillary facilities area), a replacement well would be constructed in the vicinity of the originally designated well. Of these 15 fractured bedrock wells, the only well that cannot be constructed prior to landfill operations will be GLA-18. Because of the steep slopes, access to this well location is not anticipated until the landfill operations extend a significant distance up the canyon and the utility pad is constructed. Until that time, a drill rig will not be able to gain access to the area for well construction.

The water quality monitoring program will also include monitoring in the San Luis Rey River valley from an upgradient replacement well Lucio #2R located at the Lucio Dairy near the eastern property boundary and three wells downgradient of the project area including wells GMW-3; SLRMWD #34R, a replacement well adjacent to and slightly south of existing well SLRMWD#34 (SLRMWD designation); and well GLA-16 within the San Luis Rey River valley. Wells GLA-16 and SLRMWD well #34R are considered to be "sentry" monitoring points downgradient of the point of compliance, and designated to intercept groundwater flows as predicted by computer modeling that simulates a release from the landfill to the Pala Basin (Section B.5.1.1.4, and Appendix C). The boring logs for those wells included as part of the site's DMP are included in Appendices C, C-1 (for the recently constructed wells [in June/July 2004]), and G.

Water quality monitoring will also include sampling and analysis of surface water and other monitoring points (e.g., leachate and subdrain liquids). Discussion of these portions of the monitoring program are provided in Sections B.5.1.3.2 and B.5.1.3.3.

Beginning in December 2000, samples were collected quarterly for one year and analyzed for the full suite of "constituents of concern" (COCs) as defined by the Code of Federal Regulations (40 CFR Part 258, Appendix II). The COCs include a broad range of general chemistry constituents, 17 metals, as well as volatile organic compounds (VOCs), semi-volatile organic compounds, pesticides, herbicides and polychlorinated biphenyls (PCBs). A summary of the water quality data obtained during the four quarters of COC monitoring is provided in Appendix C.

Following construction of the groundwater monitoring network (with the exception of proposed background well GLA-18) and based on RWQCB guidelines to obtain up to 16 baseline data points to characterize naturally-occurring water quality of the site before waste is received by the facility, the groundwater monitoring network and surface water monitoring points will be sampled and tested quarterly for a subset of the COC list of analytes to develop a statistical database of background (pre-development) water quality chemistries. Once the landfill construction schedule is established, a more accelerated sampling and analysis program (e.g., bimonthly or monthly) may be implemented to obtain the necessary baseline data. The monitoring program will include collection of samples from existing bedrock monitoring wells GLA-2, GLA-4, GLA-5, GLA-11, GLA-12, GLA-13, GLA-14, GMW-1, GLA-A through GLA-G, and alluvial wells GMW-3, Lucio #2R, SLRMWD #34R, and GLA-16. Prior to each sampling event, water levels will also be measured quarterly in each of these wells and water level measuring stations GLA-1, GLA-3, GLA-7, GLA-8, and GLA-10

Samples will be collected and tested for the 40 CFR Part 258, Appendix I list of a minimum of 47 VOCs along with the metal surrogates (chloride, nitrate as nitrogen, sulfate, pH and total dissolved solids [TDS]), calcium, magnesium and sodium, referred to herein as the routine monitoring parameters (MPars). Because the site is located in an area of agricultural land use, GLA has recommended that the samples also be tested for chlorinated herbicides and organochlorine pesticides for a period of at least one year (four quarterly sampling events) to establish a broader baseline of water quality data for these constituents.

In accordance with State and Federal regulations, the laboratory shall achieve the lowest possible detection limits for each constituent in the program. Once the database has been established, the groundwater chemistry data will be analyzed for statistical significance using the procedures set forth in 27 CCR, Section 20415. Finally, once the landfill becomes operational and in accordance

with site-specific WDRs prepared by the RWQCB, the results and interpretation of the data obtained during sampling will be reported to include the rate and groundwater flow direction determined from measurement of depths to groundwater in the monitoring wells and water level measuring stations; a description of the sampling and analytical methods and laboratory quality control procedures; and a summary of landfill recordkeeping and on-site inspections. It is anticipated that the data will be reported to the RWQCB on a quarterly basis. This data will also be coordinated with and provided to the San Luis Rey Municipal Water District as required in the agreement with Gregory Canyon Ltd.

The more extensive analytical program for COCs (as identified in 40 CFR 258, Appendix II) will be conducted every five years for each media (e.g., groundwater, surface water, leachate, leak detection/drainage layer liquid, and subdrain water), and COCs identified in a sample and verified by retest will be added to the list of routine analytes. In addition, whenever a new background well is added to the DMP, the new well will be sampled four to six times per year for the full 40 CFR 258, Appendix II suite of COCs, as necessary, in order to establish the background database for groundwater chemistry in the new well.

B.5.1.3.2 SURFACE WATER MONITORING

Surface water monitoring is conducted to provide the RWQCB with data on the operational site containment system effectiveness. Surface water monitoring at the GCLF will be performed to monitor seasonal surface water run-off at three proposed monitoring points (see Figure 10c), including samples within the landfill area (at the bottom of the canyon, if water is present), and within the San Luis Rey River, up and downstream of the point where Gregory Canyon intersects the river. As a result of the limited water that is likely to collect in the upper reaches of the canyon, there is not likely to be sufficient data on which to evaluate surface water within Gregory Canyon using upstream to downstream comparisons. However, following a significant rain event, sampling and testing of a downstream (compliance) location (GCSW-2) for VOCs will be conducted. The canyon compliance location GCSW-2 will be located toward the mouth of the canyon, approximately 30 feet east of well GLA-10 and monitored for VOCs only as an indicator of landfill impacts to surface water. To monitor the surface water quality in the San Luis Rey River, the background San Luis Rey River surface water monitoring point (SLRSW-1) will be located in the San Luis Rey River at the Gregory Canyon site upstream property boundary, downstream

from the Hanson sand and gravel pits. It will provide water quality data for surface water entering the property from the Hanson sand and gravel quarry. The compliance surface water monitoring point (SLRSW-2) will be located downstream of the landfill at a sampling point east of the access road bridge. Surface water monitoring will be performed on a quarterly basis in accordance with the site WDRs issued by the RWQCB.

B.5.1.3.3 OTHER MONITORING POINTS

In addition to groundwater and surface water monitoring at the GCLF, after landfill construction begins, sampling will also include collection of liquid from the subdrain system (although under the prescriptive standard design no groundwater is expected in the subdrain system), the leak detection/drainage layer between the upper composite liner and lower HDPE liner and the LCRS. At a minimum, if liquid is present, the subdrain system and leak detection/drainage layer monitoring program will include analysis for the constituents included in the groundwater and surface water monitoring program (the quarterly MPars). If groundwater is collected in the subdrain, following review of the laboratory analytical data, it will either be used on site or discharged to the river under an approved NPDES permit for point source discharge.

For the LCRS, sampling will be conducted annually in October and analyzed for all of the COCs as listed in 40 CFR Part 258, Appendix II. If a new non-COC is identified in the sample, the LCRS will be resampled in April of the following year for each non-COC. With the exception of the heavy metals, which are generally poorer indicators of a release since many are also naturally occurring, new constituents confirmed in the retest sample will be added to the list of routine quarterly water quality MPars.

B.5.1.4 NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM (NPDES) STORMWATER MONITORING PROGRAM

A SWPPP and MPRR have been prepared for the landfill in accordance with NPDES General Permit requirements. Copies of the SWPPP and the MPRR are included in Appendix D. To obtain authorization for industrial stormwater discharge, the landfill must comply with a General Permit to Discharge

Stormwater Associated with Industrial and Construction Activities. The operator has submitted a Notice of Intent (NOI) for issuance of a NPDES permit under the Construction Activities General Permit and will submit a NOI for Industrial Activities concurrent with the application to obtain WDRs. Stormwater monitoring is required on two occasions each year during the wet season, starting with the first rain event that produces a significant runoff volume. The designated discharge points will be monitored in accordance with the SWPPP and MPRR, and MPRR reports will be submitted to the RWQCB on an annual basis.

B.5.1.5 POTENTIAL RELEASE FROM THE WASTE MANAGEMENT UNIT

Water quality impacts associated with solid waste management units are typically related to the following: surface water degradation associated with contact of the waste prism with surface water or liquid discharge from the landfill to surface waters; vadose zone degradation associated with either gas or moisture migration from the waste management unit; and groundwater degradation associated with landfill liquid or gas migration to the water table. In accordance with 27 CCR, Article 1, the following sections describe the anticipated avenues by which landfill constituents may be released to groundwater beneath and/or adjacent to the waste management unit. Though not anticipated at the GCLF owing to the design and operational controls to be implemented, their pathways form the basis of the "reasonably foreseeable release" discussed in Section B.5.1.6.

B.5.1.5.1 SURFACE WATER

Landfills can impact waters of the state by direct communication between surface waters and refuse. The design of effective drainage and erosion controls at the GCLF will minimize the potential for direct surface water contact with refuse. The most likely contact is precipitation from a storm falling onto any exposed refuse at the active face when the site is open. The active face is maintained to as small an area as possible and any precipitation migrating into the refuse prism would eventually be captured in the LCRS.

Another possible scenario involves surface water impacts associated with seepage of landfill fluids, and the commingling of these fluids with normal surface water run-off. However, this is not a common occurrence due to the use of BMPs, cover repair, etc. associated with routine landfill operations.

B.5.1.5.2 LANDFILL GAS

Subsurface movement of landfill gas outside the limit of refuse is a second means by which landfill constituents can impact state waters. Landfill gas often contains a variety of VOCs that may move off-site with the gas. Landfill gases are typically water-saturated. Upon exiting the refuse prism, landfill gases may impact groundwater in two ways. First, where groundwater is relatively shallow, landfill gases may mix directly with groundwater. The second and more common mode occurs when the warm landfill gases migrate to the cooler vadose zone and the water vapor associated with the landfill gas condenses to the liquid phase carrying with it some VOC components. Once condensed, these landfill constituents may migrate vertically downward through the unsaturated zone to groundwater.

B.5.1.5.3 VADOSE ZONE

The vadose zone can be defined as a subsurface zone containing water at hydraulic pressures that are less than atmospheric pressure and air or gases at atmospheric pressure. Water in the vadose zone (including landfill gas condensate) can migrate vertically, through fractures or pores in the weathered rock, and eventually reach groundwater.

B.5.1.5.4 GROUNDWATER

Once landfill constituents have reached groundwater, the natural groundwater flow gradients and the dispersive properties of the specific contaminants will govern how groundwater contaminants migrate from the site. At the GCLF, groundwater flows in a northerly direction under a gradient of approximately 0.045 ft/ft (alluvial aquifer) to 0.2 ft/ft (bedrock aquifer).

B.5.1.6 ANTICIPATED METHODS OF MITIGATION

The following discussion identifies the "worst case release" scenario that could reasonably be expected at the site, and the mitigation measures that are anticipated to respond to these conditions. While not anticipated at the GCLF, this scenario is submitted in response to 27 CCR, Article 1.

B.5.1.6.1 SURFACE WATER

Since surface waters will not come in contact with wastes, and run-on and run-off will be controlled, the worst case surface water release scenario involves transport of minor volumes of landfill constituents in run-off to the San Luis Rey River. Considering that wastes will be covered by daily and interim cover soils, and since run-off will be controlled in a drainage system designed for the 100-year storm event and will be monitored as part of both the WDRs and NPDES permits, the volume of impacted water that might be released from the site is expected to be minimal. In the event that runoff from the WMU impacts San Luis Rey River water, a program would be implemented to investigate how such impacts occur and to identify engineering measures (e.g., leachate seep controls such as additional cover soils or drains) to eliminate the source of impacts.

During inclement weather, the active disposal area will be reduced to limit the amount of refuse exposed to the rainfall. In addition, periodic inspection and repair of cover soils will significantly minimize the possibility that landfill fluids will seep through the cover soils and migrate into surface water control systems.

GCLF will have extensive temporary and permanent storm water control systems in place throughout active site operations and during a minimum of 30 years of post-closure. These design features are presented in Sections B.5.4 and C.2.8.3 of the JTD. The site operator will be complying with both the Industrial and Construction General Storm water Permits. Therefore, an extensive SWPPP and M&RP was developed specifically for the GCLF (Appendix D). This program is required to be reviewed annually and adjusted to provide optimum protection of storm water flows. In an extreme situation, such as a "wash-out" of solid wastes from the Unit caused by a large storm event or multiple events, all efforts by the discharger would be geared toward preventing run-off to local surface water bodies (e.g., San Luis Rey River). Measures would be taken to retain the affected storm water within the desilting basins (i.e., temporary freeboard can be achieved through placement of sandbags along the perimeter of the desilting basins). The affected surface water would be retained until it could be tested and would then be released, pumped into a holding tank or treated, as appropriate.

A discharge of waste to the river from a potential "wash out" would temporarily impact the beneficial uses of the surface water. In response to such a condition,

all waste would be collected from the river immediately by the operator's litter crew, working from the furthest end of the release to the landfill.

B.5.1.6.2 LANDFILL GAS

A network of landfill gas migration monitoring probes will be installed around the perimeter of the refuse footprint as the landfill expands (Figure 2). These probes will be routinely monitored to ensure that no gas is leaving the site in excess of regulatory limits. Any landfill gas migration from the refuse prism will be mitigated by the installation of landfill gas collection wells to control potential gas migration. Section B.5.2.3.1 provides information on the landfill gas migration monitoring system.

B.5.1.6.3 VADOSE ZONE

As described above, landfill gas migration into the vadose zone can be mitigated by a network of landfill gas collection wells. Given the fractured nature of the underlying geologic structure, liquids entering from the landfill are not anticipated to accumulate significantly in the vadose zone and as a result, lysimeters and/or other vadose zone systems are not considered practical at this site.

B.5.1.6.4 GROUNDWATER

The "reasonably foreseeable" release to groundwater from the facility would involve leakage of landfill fluids or landfill gas from point defects in the landfill liner system into the underlying bedrock. Landfill gas impacts might also occur by migration from the landfill, which upon cooling will condense and form a liquid that can infiltrate into the underlying bedrock through a point defect.

A release of leachate or landfill gas condensate would likely contain a variety of inorganic and organic compounds. Typically, landfill-generated leachate and condensate contain numerous chlorinated aliphatic and aromatic organic compounds. The most commonly detected of these include tetrachloroethene (PCE), trichloroethene (TCE), isomers of dichloroethene (DCE) and dichloroethane (DCA), vinyl chloride, and aromatic compounds such as benzene, toluene, ethylbenzene, and xylenes (collectively, BTEX compounds). The total concentration of VOCs measured in typical landfill leachate samples

rarely exceeds 1 milligram per liter (1 mg/L). At these concentrations, the VOCs exist in a dissolved phase within the leachate, and do not form immiscible layers that can be identified within an aquifer and removed. Generally, removal of such low concentrations of these chlorinated organic compounds can be effectively accomplished using reductive dechlorination, while the aromatic hydrocarbons are more effectively degraded by oxygenation techniques. These techniques break down VOCs by replacing the chlorine ions with hydrogen ions, reducing them to stable compounds (such as ethene or ethane) that have little or no effect on human health or the environment.

Since the site will already be equipped with a groundwater treatment system (i.e., RO system), potential groundwater mitigation assumes a groundwater extraction and treatment method. The reasonably foreseeable release corrective action will include the installation of eight groundwater extraction wells drilled to approximately 100 feet and placed on 250-foot centers across the downgradient limit of the landfill. The wells will be equipped with dedicated pumps and discharge tubing to extract the water from the wells to an influent tank. Based on the anticipated concentrations, it is currently anticipated that the organic compounds in the groundwater can be most effectively treated by granular activated carbon (GAC). As a result, once the water has passed through the RO system to remove additional inorganic compounds, it will be processed through the GAC to remove organic compounds. The treated water would likely be stored in a tank for use on site or discharged to the San Luis Rey River under an approved NPDES permit.

It is also anticipated that there will be additional groundwater monitoring costs to evaluate the effectiveness of the treatment system and to comply with an NPDES permit for potential discharge of the treated groundwater to the San Luis Rey River. Under the current reasonably foreseeable release scenario, it is assumed that monthly influent and effluent sampling will be performed and the samples will be submitted for TDS and volatile organic compounds analysis for the duration of the corrective action, estimated to be operational over a period of up to 10 years. Under the NPDES permit, the effluent will be analyzed for a suite of inorganic and organic compounds as well as acute and chronic toxicity on a quarterly/semiannually basis in accordance with the permit conditions. (A longer constituent list is required semiannually compared with the quarterly monitoring program). Results of the monitoring program will be reported to the RWQCB on a quarterly basis.

B.5.1.6.5 AFFECTS OF GROUND AND SURFACE WATER ON THE UNIT

Impacts can occur to the landfill unit from groundwater intrusion and surface water inundation. An evaluation of the fluctuation of local groundwater levels as they might affect the integrity of the liner system for the waste management unit and surface water condition related to off-site drainage run-on and storm water discharges upon the waste management unit is presented below.

B.5.1.6.6 AFFECTS OF GROUNDWATER

Generally, no impacts are expected from groundwater on the waste management unit since the landfill is situated above the highest anticipated groundwater elevation. However, in the unanticipated event that groundwater was to rise significantly, the landfill design also includes a subdrain system in the floor areas of the landfill to convey any groundwater away from the landfill by gravity. A discussion of the subdrain system is included in Section B.5.1.2 – Subdrain System.

B.5.1.6.7 AFFECTS OF SURFACE WATER

Surface water run-on and storm water discharges affects on the landfill unit could include:

- Erosion of daily, intermediate, and final cover.
- Exposure of wastes thus increasing vectors and nuisances and potential offsite surface water impacts.
- Infiltration of water which increases the potential for the production of leachate and potential for groundwater impairment.

Elimination or reduction of the amount of surface water that enters the landfill unit is important in the design and operation of the unit because surface water is the major contributor to the total volume of leachate. Storm water run-on from the surrounding areas will not be allowed to enter the unit and storm water discharges will not be allowed to accumulate on the surface of the landfill. Section B.5.4 – Drainage and Erosion Control discusses control methods which aid in the minimization of run-on/run-off and surface water intrusion and Section C.2.8 – Drainage Control System discusses the drainage control measures which aid in removal of surface water run-off and prevention of surface water run-on.

B.5.1.7 ESTIMATED COST FOR REASONABLY FORESEEABLE RELEASE MITIGATION

In accordance with 27 CCR, §20380(b), the GCLF will establish and maintain assurance of financial responsibility for initiating, and completing corrective action for all reasonably foreseeable releases from the GCLF. As shown in Table 8, costs have been estimated to implement a Correction Action Program associated with a release to the underlying bedrock as described in Section B.5.1.6.4 above. The cost estimate is intended to provide a basis for the compliance with 27 CCR, Article 1 financial assurance requirements.

TABLE 8
GREGORY CANYON LANDFILL
ESTIMATED MITIGATION COSTS

ITEM	UNIT COST	UNITS	TOTAL COST
Construction Costs			
Corrective Action Well Construction (1)	$10,700	8	$85,600
Extraction Pumps	$4,000	8	$32,000
Electrical Conduit	$15	4200	$63,000
Conveyance Piping	$40	4200	$168,000
Water Treatment System	$92,000	1	$92,000
R/O System (3) (5) (5A)	$540,000	1	$0
Surface Water Impact Mitigation (6)	$500,000	LS	$500,000
Regulatory Liaison/Project Management (7)	$125,000	LS	$125,000
		Sub-Total	**$1,065,600**
		Engineering/CQA (6%)	$63,936
		Construction Management (2) (10%)	$106,560
		Contingency (20%)	$213,120
		Construction Sub-Total	**$1,449,216**
Operational Costs	**COST/YEAR**	**YEARS**	**TOTAL COST**
Extraction Well Maintenance (8)	$10,700	3	$32,100
Laboratory Analyses (4)	$21,400	30	$642,000
Groundwater Monitoring and Reporting	$12,000	30	$360,000
Regulatory Liaison/Project Management	$20,000	30	$600,000
Granular Activated Carbon Treatment System Annual Maintenance	$25,000	30	$750,000
Surface Water Mitigation (9)	$1,000,000	LS	$1,000,000
		Operation Cost Sub-Total	**$3,384,100**
		Total Cost	**$4,833,316**

Assumptions:

1. Corrective action wells will be permitted by the San Diego County Dept. of Environmental Health ($150/well), and are assumed to be five-inch diameter wells to 100 feet, with stainless steel screens (~$100/ft.). Each well will be developed following construction (~4 hours @ $130/hour).
2. Construction management will include logging of borings, observation of well construction, well development, and documentation (~120 hours @ $70/hour).
3. A R.O. system for water treatment will be installed at the onset of the project development. Therefore, the cost for the R.O. system is not necessary as part of the cost estimate for reasonably foreseeable release mitigation. Costs include only those associated with addition of GAC to treat volatile organic compounds in groundwater.
4. Laboratory analyses include monthly influent and effluent analyses (~$250/month), and quarterly (~$1500) and semiannual (~$2050) analyses for NPDES monitoring. Analyses also include staff time for sample collection (~1 hour/month @ $50/hour).
5. The R.O. system will be installed during initial construction per an agreement with the San Luis Rey Water District and be available for impacted groundwater treatment along with the water treatment system described in Section B.5. Therefore, the capital cost of $540,000 for the R.O. system is not included in the reasonably foreseeable release cost estimate.

5A. The R.O. system may be used for surface water clean-up. The surface water impact mitigation cost includes evaluation and determination of corrective action, and implementation of surface water clean-up as well as determination if operational cost for the R.O. system should be utilized for surface water clean-up.

6. Surface water impact mitigation is for unanticipated releases from the waste management unit to the natural drainage ways including the San Luis Rey River during the active operation and post-closure maintenance period. Any release occurring during active operations will be mitigated with operational revenues generated from tipping fees.
7. Includes preparation of an ROWD, EMP/AMP, EFS/ACM, SOR and CAP documents in response to identification of release and coordination with RWQCB during CAP construction.
8. Operational cost estimate assumes replacement of one extraction well every 10 years.
9. The operation and maintenance of the R.O. system is included in the line item for "Surface Water Mitigation" cost.

B.5.1.8 GROUNDWATER TREATMENT SYSTEMS

Reverse Osmosis

The Agreement between the San Luis Rey Municipal Water District and the applicant requires the installation of a RO system. The RO system will be installed in the southwestern portion of the ancillary facilities area. The RO equipment and interconnecting piping will be constructed above ground inside a concrete containment area, which will be secured with a slatted chain link fence.

The purpose of the RO system is to provide a groundwater treatment facility that is in place in the event that groundwater impacts are identified. As currently configured, the primary constituent that the RO system would remove is total dissolved solids (TDS) and has the capability to treat 50 gpm. The system can be modified to handle organic compounds or other contaminants, as necessary.

Based on a typical release, VOCs are generally the constitutes that are associated with landfills which need removal and treatment. Due to the high cost of operations for an R/O system, a granular activated carbon system was included as the impacted groundwater treatment system for purposes of 27CCR unforeseeable release. The GAC is discussed in the following section and O&M costs associated with this treatment option are included in Table 8.

The RO treatment involves the separation of TDS from water by applying pressure to a feed stream passing over a semi-permeable membrane, thereby inducing flow of water molecules through the membrane, leaving the dissolved solids on the influent side. The RO system creates two effluent streams, the reduced TDS water that passed through the membrane (clean water) and the elevated TDS solution (brine) that remains on the feed side of the membrane.

If necessary, the effluent (clean water) will be stored in a tank and then discharged into the San Luis Rey River or used on site and would meet a standard of 500 parts per million (ppm) of TDS or a standard as setby the RWQCB for discharge to the San Luis Rey River. The brine, which is the end wasteproduct that contains the larger TDS particles in a concentrated liquid, will be collected in a tank and hauled off site for disposal. It is anticipated that the brine would be taken to the Hale Avenue Resource Recovery Facility in Escondido or a similar facility.

If the RO system were to be needed, groundwater would be supplied to the RO system influent tank from the groundwater monitoring wells, any dedicated groundwater extraction wells installed as part of a Corrective Action Program, or from the subdrain collection system that is part of the overall waste containment and environmental monitoring system.

Granular Activated Carbon

GAC adsorption technology is a proven technology for removal of VOCs from groundwater, which is a more typical contaminant release treatment scenario for a non-hazardous landfill. GAC is also often used as a water purification technology for removal of VOCs from drinking water. The major components of the GAC treatment system for the GCLF groundwater project would include:

- Influent equalization tank;
- Two influent transfer pumps;
- Pre-filtration system;
- Two 2,000-pound GAC vessels; and
- Effluent surge tank.

The influent tank would be used to maintain a steady flow through the GAC vessels and to accommodate GAC backwash water for re-processing. The influent transfer pump would be controlled by high- and low-level switches in the influent tank and, when operating, would maintain a constant flow rate to the treatment system. A pre-filtration system will be required to minimize transfer of suspended matter from the influent to the GAC vessels. It is expected that the GAC adsorption system would operate under pressure (about 10-15 pounds per square inch [psi]), and will be transferred directly to an effluent surge tank or an effluent transfer pump. The treated effluent will then be pumped to the RO system.

For the Gregory Canyon site, it is anticipated that two GAC adsorption vessels would operate in parallel. Periodic backwashing may be required to remove trapped suspended matter and biofouling matter that accumulates on the GAC bed. During backwash, one GAC vessel would remain in operation while the second vessel undergoes backwashing. Water from the backwash process would then be circulated to the influent tank for re-treatment. Since the filtration system would be installed ahead of the GAC vessels, a monthly backwash of each unit would be recommended.

Table 8 provides the system design cost for the GAC adsorption treatment system. It should be noted that the GAC would only be utilized in the event of a release and implementation of a CAP under the reasonably foreseeable release scenario.

B.5.1.9 REPORTING

GCLF will conduct compliance monitoring and submit associated reports in accordance with WDRs for the proposed landfill to the RWQCB. GCLF shall submit, at a minimum, the following required monitoring reports:

- Water Quality Monitoring Report (Quarterly)
- Annual Summary Report
- Constituents of Concern (COC) Monitoring Report - Every Five Years

B.5.2 GAS CONTROL AND MONITORING

B.5.2.1 INTRODUCTION

Landfills which receive organic wastes in significant quantity will produce "landfill gas". This gas generally consists of equal amounts of methane and carbon dioxide along with traces of other constituents. The production of landfill gas within the refuse cell is of interest due both to the flammability of methane in concentrations between 5 and 15 percent by volume in air and for air pollution reasons. For additional information regarding the landfill gas control system, refer to Section C.2.7.

B.5.2.2 REGULATORY REQUIREMENTS

Local, state and federal regulations require the control of landfill gas to prevent it from migrating away from the landfill boundaries and accumulating in off-site structures. In addition, local air pollution control districts, and state and federal air quality regulations require the control of emissions into the atmosphere. The local air protection agency is the SDAPCD which administers Rule 59 (d) (ii) A (Landfill Emissions Control Systems).

The landfill will be subject to two Federal New Source Performance Standards (NSPS):

- Subpart WWW (Standards of Performance for Municipal Solid Waste Landfills); and
- Subpart OOO (Standards for Performance of Nonmethalic Mineral Processing Plants).

Each of these NSPS establishes national standards for controlling emissions from parts of the facility, and each standard is fully applicable in San Diego to the GCLF.

Subpart WWW regulates Municipal Solid Waste (MSW) Landfills and establishes standards and control efficiencies for emissions of nonmethane organic compounds. Subpart OOO regulates rock processing operations at the landfill, and requires that stringent limitations be met for emissions from crushing, screening, transfer points and other operations and process.

Although stationary source emissions of NO_x and VOC at the GCLF do not exceed the applicability threshold limit of 50 megagrams per year for "serious" ozone non-attainment areas, under Part 70 (Title V Program), all landfills subject

to Subpart WWW with a design capacity greater than or equal to 2.75 million tons may be subject to Part 70 permitting requirements.

Part 72—(Acid Rain Program) will not apply to the GCLF because the stationary source emissions do not meet the requirements of an affected source, as found in Subpart A—Acid Rain Program General Provisions; and Subpart G—Acid Rain Phase II implementation, as related to Title V operating permit programs. Part 72.6(8)—Applicability exempts non-utility units from the Acid Rain Program.

B.5.2.3 GAS CONTROL/RECOVERY SYSTEM

The landfill gas control system will consist of a series of gas collection wells interconnected by above-ground laterals (pipes) and a main header pipe connected to the flare station. The system will be brought on-line with a blower designed to create a vacuum pulling landfill gas to the flare for destruction. The flare station will be located along the northern portion of the landfill, adjacent to the operations support facilities. The gas control/recovery system will be expanded as the landfill is developed to provide ongoing control within the performance criteria established and mandated by the SDAPCD and state and federal regulations. Figure 11 presents a conceptual layout for the landfill gas control system based on the anticipated final configuration of the landfill.

B.5.2.3.1 PERIMETER GAS MIGRATION MONITORING SYSTEM

The gas migration monitoring system at GCLF will consist of 16 probes spaced at approximately 1,000-foot centers around the entire refuse prism (Figure 2) to detect potential gas migration prior to reaching the property boundary. The probes will be installed along the property boundary to the south and in consideration of the site topography along the northeast and west of the refuse footprint. The probes will be installed around the perimeter as the landfill is developed beginning on the northern end of the site and moving towards the south. The conceptual location of the probes provide effective points to detect any gas migration since the probes are located a sufficient distance beyond the landfill footprint to allow detection of migrating gas. Once the site is operational and real data is gathered, adjustments will be made to the probe locations, as necessary.

If gas is detected in the monitoring probes in excess of regulatory requirements (i.e., 27CCR and 40CFR, 258.23), the gas control system will be adjusted or expanded, as required. Results from the perimeter gas monitoring probes will be compiled into a report and submitted by GCLF to the SDAPCD, EA and CIWMB on a regular basis as determined by the EA and/or SDAPCD.

B.5.2.3.2 GAS CONDENSATE COLLECTION SYSTEM

A landfill gas condensate collection system will be constructed to gravity drain condensate to sumps located at header low-points around the landfill. The collected condensate will be removed from the sumps manually or will be pumped automatically to a central holding tank. The condensate will then be transported off-site.

B.5.2.3.3 STRUCTURE MONITORING

On-site structures at the GCLF will be monitored for detection of potential landfill gas migrating into building structures in accordance with 27 CCR, Section 20931 and 40 CFR, 258.23.

B.5.2.4 LANDFILL GAS MONITORING

The monitoring of dust control and gas emissions will be conducted in accordance with SDAPCD Rule 59 (d) (ii) A (Landfill Emissions Control Systems). Results from data will be compiled into a report and submitted by GCLF to the SDAPCD.

B.5.3 NUISANCE CONTROL

The following sections describe those measures established by GCLF to eliminate and/or minimize nuisances associated with the operation of a typical landfill. Mitigation measures included in the MMRP from the certified FEIR are included in Appendix D-2 of the JTD.

B.5.3.1 DUST CONTROL

The dust control program for the GCLF consists of both construction/operations and maintenance procedures including paving of the main access road, proper

maintenance and watering of the internal haul roads; use of soil binding agents for improvement of internal haul roads, where approved; water spraying of soil cover areas when conditions exist which may result in the formation of fugitive dust; applying water and/or planting temporary vegetation on intermediate soil cover areas, and planting and maintaining a vegetative cover on completed fill and excavation slopes.

During construction the site will be wetted down in the late morning and after work is completed for the day. Non-active construction areas that have not been reseeded will be wetted down at least once per day to minimize windblown dust. The main access road will be paved, swept regularly, and watered at least twice daily. All unpaved haul roads will be watered every two hours during construction, unless the road surface appears visibly damp. Non-toxic soil binders and water will be applied to internal haul roads, and haul roads will be properly maintained. All areas of vehicle movement will be kept sufficiently damp to prevent the raising of dust by travel in these areas. Traffic speeds of no more than 10 miles per hour will be maintained on all on-site, unpaved road surfaces. Soil cover areas will be watered when conditions exist which may result in the formation of fugitive dust.

To minimize fugitive dust from loads (such as construction and demolition debris), covering or tarping these loads will be required. Uncovered dusty loads may be refused. Customer found to be bringing in uncovered loads will be informed of the covered load policy and will be rejected upon second observation. Dusty loads will be watered as soon as possible to reduce fugitive dust generation during tipping. In addition, trucks carrying aggregate off-site will be watered down prior to leaving the site to reduce fugitive dust.

Dust control measures will be implemented in areas that are not in active operations to minimize wind generated dust. Water will be applied and/or temporary vegetation planted on intermediate soil cover areas. Groundcover will be re-established on areas disturbed by construction through seeding and watering those areas that will not be disturbed for extended periods. A native vegetative cover will be planted and maintained on completed fill and excavation slopes.

A Dust Control Plan will be prepared and submitted to the LEA and SDAPCD.

B.5.3.2 VECTOR AND BIRD CONTROL

Refuse compaction and the application of daily cover are the most effective preventions against the propagation of vectors (i.e., insects, rodents) and birds on-site. Professional pest control services, including conventional slap-traps and anticoagulant rodenticide, will be used to control insects and rodents in the ancillary facilities area. Site personnel will inspect landfill areas monthly for any signs of rodent activity and will implement the necessary activities to minimize vector nuisances. A Vector Control and Management Plan (Plan) will be provided to the Vector Surveillance and Control Division of the Department of Environmental Health for review and approval. The approved Plan and bird control policy will be implemented for the landfill. Under the vector control plan, items used at the site which may attract vectors will be stored in closed containers and/or within enclosed structures. Building openings, ground holes and deficiencies in the perimeter fence will be repaired to deter the intrusion of ground vectors.

Removal of the existing dairy will eliminate attraction and habitat for cowbirds and other nuisance bird species. However, the landfill will attract birds. Therefore, when birds are observed on-site, operations staff will use dispersal techniques to disturb the bird behavioral patterns. These techniques may include the playback of distress vocalizations, falcon kites, owl decoys, or dispersal by humans and/or dogs.

To minimize mosquitoes, proper grading and drainage will eliminate puddles and wet areas. The desilting basins are designed using Best Management Practices (BMPs) so that the basins drain themselves within 72 hours through the use of drain pipes and evaporation. The basins will be cleaned out regularly. Since tire storage attracts vectors, tires will be shredded a minimum of every six months to deter both mosquitoes and rodents.

B.5.3.3 LITTER CONTROL

The primary cause of litter around a landfill is wind. The main control for windblown litter begins at the unloading area through the rapid spreading and compacting of refuse, and daily cover placement over all exposed refuse at the end of each working day. The commercial unloading activities will be conducted at the toe of the working face, when practical, to afford some wind

protection. Litter migrating off-site will be minimized by perimeter fencing. Finally, all commercial loads will be required to be covered with a tarp. Portable, temporary fencing may be used to control windblown papers at the working face. Disposal operations will be suspended during periods of high winds (when sustained winds of 40 miles per hour or greater, or gusts of 55 miles per hour or greater are expected to persist for one hour or longer).

Section 5 of Proposition C includes a mitigation measure concerning litter and illegal dumping. The measure, in addition to the litter control measures discussed above, requires that a clean up team, consisting of one truck with a two-person crew, inspect for and clean up all litter and illegal dumping on or adjacent to the landfill access road and SR76 between I-15 and the site. The inspection and clean up will occur five days each week. In addition to the requirements of Proposition C, litter inspection will be done every day that the landfill is open to accept refuse, and litter will be cleaned up on the sixth day as determined necessary by the inspectors. Litter will be collected as necessary outside the landfill perimeter, along the southern boundary of the project site adjacent to the landfill footprint, on-site around the operations area, around the ancillary facilities (i.e., entrance area, maintenance area), along SR76 between I-15 and the project site, along the access road, and any other areas where litter has blown off-site in objectionable quantities. Project-related litter will not be allowed to accumulate along roads, fences, or in vegetation.

B.5.3.4 NOISE CONTROL

Site operations will be conducted in compliance with Cal-OSHA regulations and the County Noise Ordinance. Noise levels of on-site equipment will be controlled by installation and proper maintenance of mufflers on all motorized vehicles. In the event that excavation operations necessitate additional measures beyond use of traditional heavy equipment, controlled blasting may be employed. Written notice will be provided to residents within a one-mile radius of the blast site at least 24 hours in advance of any on-site blasting. Site personnel will be provided with hearing protection (e.g., ear plugs or muffs) to reduce exposure from continued on-site noise levels. Rock crushing and tire shredding will occur at least 1,500 feet from the nearest residences unless other forms of noise attenuation, such as berms or acoustical curtains, are used to reduce combined landfill noise levels to below the County Noise Ordinance limit.

B.5.3.5 FIRE CONTROL

The GCLF is located in a somewhat remote area, therefore, fire prevention and control measures are of great importance and will be diligently pursued by the operator. Burning of refuse will not be allowed at the landfill facility, which minimizes the chance of above ground fires.

The primary fire prevention measure will be a firebreak between the refuse and the undisturbed natural areas surrounding the landfill. In compliance with the requirement to maintain a minimum clearance of 150 feet from the periphery of any exposed flammable solid waste (California Public Resources Code Section 4373), refuse placed within 150 feet of the landfill perimeter will be placed using the following procedures:

- Clearance of brush and vegetative debris from around the active disposal area.
- As operations move into the 150-foot zone, the operator will place soil cover regularly throughout the day.
- At no time during operational hours will refuse be exposed for more than four hours.

The potential of subsurface fires is reduced through the application of daily and intermediate soil cover placement, which will limit the amount of oxygen available for combustion. The primary measures for fire control include load checking for smoldering or burning wastes and separation of these wastes if spotted by a dozer and the covering of the fire with soil. While water could be sprayed over burning wastes, this is generally not done to avoid the introduction of liquids into the waste prism.

Additional fire prevention measures will occur on site. The landfill gas control system will be operated so as not to introduce excessive amounts of oxygen into the refuse prism. The extraction wells will be monitored for temperature and oxygen content to determine if a subsurface fire is present. All equipment with internal combustion engines will be equipped with approved spark arrestors and any flammable debris will be removed from the under carriages and engine compartments of heavy equipment on a regular basis. Fire extinguishers will be available at the entrance facilities, in the administration and operations trailers, and in landfill equipment and vehicles. Hazardous materials, collected as part of the HWEP, will be stored in fire proof containers located in the ancillary facilities area.

Site personnel will also be observant of fires that may occur along the perimeter of the site and will help in suppression efforts. Additional fire suppression forces are available from the California Department of Forestry (CDF) station.

Tire storage can result in fires. To reduce the risk of fires from tire storage, tires will be stored within the landfill footprint in compliance with the County's 1994 Uniform Fire Code, Section 1103.3.6, Outside Storage of Tires, as well as 14 CCR, Section 17354. Tires will be shredded a minimum of every six months. Section B.1.5.2.3 provides additional detail on tire acceptance, storage, processing, and disposal.

B.5.3.6 ODOR CONTROL

The primary means of controlling odor from refuse at the site is the landfill gas control system and the placement of daily, ADC (i.e., geosynthetic blankets) or intermediate soil cover over all exposed refuse at the end of each operating day. The active working face will be confined to as small an area as practicable to help control odors. In addition, a landfill gas control system will be installed to further control odors.

B.5.4 DRAINAGE AND EROSION CONTROL

The primary function of the surface water drainage and erosion control system is to minimize erosion, to divert and convey stormwater flows in a controlled manner, and to inhibit the potential infiltration of surface water run-on or precipitation into the refuse disposal areas. The surface water drainage control system for the GCLF is designed to accommodate a 100-year, 24-hour storm event run-off volumes and the volume of water caused by a simultaneous rupture of the existing Pipeline 1 and 2 and the future Pipeline 6. Section C.2.8 contains information on the interim and final drainage control features.

The drainage control system for the GCLF will consist of perimeter drainage systems for the open channels (for adjacent area run-on) and buried pipe (for run-off from the landfill footprint), drainage berms, downdrains, energy dissipaters, and desilting basins. The 2003 Rational Method for hydrology analysis was used to predict the 100-year runoff peak for the GCLF drainage areas. The western perimeter channel is sized to accommodate a rupture of existing Pipelines 1 and 2 and future Pipeline 6 at the same time as a 100-year,

24-hour storm event. In addition, the refuse fill slopes east of the perimeter interceptor channel may be armored to prevent the runoff from a rupture destroying the cover material and exposing trash. (The size of the perimeter drains could be reduced if the existing and future pipelines are located further to the west.)

Interim drainage control features will consist of compacted earth berms constructed around the deck perimeter and the working face, which will divert water around the refuse fill and into either the downdrains and buried storm drain pipes or the perimeter storm drain system. Silt fences and sand bags may also be used to dissipate energy and remove silt upstream of the basin.

B.5.5 TRAFFIC CONTROL

Traffic control will be maintained at the GCLF to ensure that traffic flow into, on and out of the site minimizes interference and safety problems for customers and for traffic on adjacent and adjoining public roads. It is anticipated that adequate traffic control, in accordance with the above criteria and applicable regulations, will be achieved at the GCLF. The following procedures will be utilized at the landfill for traffic control:

- Customers utilizing the site will gain access via SR76. The entrance facilities will be located a sufficient distance to prevent queuing or stacking problems onto SR76.
- The on-site internal haul roads will be asphalt or tightly-compacted dirt roads that will be used by all landfill traffic. The speed limit on the landfill will be 15 mph. Safety cones will be utilized to separate and direct two-way traffic flow into and out of the active disposal areas (separate designated areas for commercial and private vehicles) of the landfill.
- The GCLF project also includes modifications to SR76 to improve sight distance and to facilitate truck movements (see Section B.3.1.1).
- Traffic coming to the site before the hours of operation will be queued on the access road up to the fee booths/scales to prevent stacking of vehicles on SR76. To accommodate the queuing, the gates located at the north side of the bridge will be opened one hour prior to the hours of operation. Therefore, the entrance gates will be opened at 6:00 a.m. Monday through Friday, and 7:00 a.m. on Saturday.

Traffic control measures will be maintained throughout the operation of the landfill.

Traffic impacts associated with the project have been addressed in the EIR document prepared in support of the GCLF development.

B.5.6 HAZARDOUS WASTE EXCLUSION PROGRAM

A HWEP for the GCLF has been prepared to comply with the state regulations under 27 CCR, Sections 20220(b)(2) and 20870(a)(1). The HWEP for the GCLF has been developed to discover and discourage attempts to dispose of hazardous or other unacceptable wastes, including PCBs, at the landfill. The HWEP includes the installation of a gamma-scintillation counter at the scale facility to detect radioactive materials, which is discussed in detail in Section B.4.4.2.1. The HWEP is discussed in detail in Section B.4.4.2.1 and a copy of the HWEP is included as Appendix F.